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An investigation of the key stakeholders' preferences into the curriculum of the associate degree in Hong Kong

To my most respectable teacher:

Professor Leon Tikly

Eric Cheng

AN INVESTIGATION OF THE KEY STAKEHOLDERS' PREFERENCES INTO THE CURRICULUM OF THE ASSOCIATE DEGREE IN HONG KONG

by

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A dissertation submitted in partial fulfillment of the requirements for the degree of

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Approved by

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Senate House

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Abstract

AN INVESTIGATION OF THE KEY STAKEHOLDERS' PREFERENCES INTO THE CURRICULUM OF THE ASSOCIATE DEGREE IN HONG KONG

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The aim of the dissertation is to assess the views of the key stakeholders regarding the relevance of the existing Associate Degree curriculum with special reference to the construction-related curriculum at CityU where the researcher works. The dissertation reports on original research into the views of stakeholders concerning the development of the existing AD curricula: a series of semi-structured interviews were conducted with the Program Leaders; a survey questionnaire was administered to 599 employers in Hong Kong who have previously recruited some of our graduates; this was followed up with a series of semi-structured interviews with employers and graduates; and, with semi-structured interviews with office-bearers of professional bodies. The main findings are that the AD curriculum which contains vocational skills also includes an increasing number of general education skills, but they are not made explicit in the course content. Although employers in Hong Kong view general skills as equally important to vocational skills, the latter are viewed as essential to begin employment. When asked to postulate on the situation in four years' time, employers are of the view that general education skills will gain in significance. However, it is argued in the thesis that Hong Kong's economy and employment needs are changing as part of the trend towards globalization. Therefore, the AD curriculum must be based on the perceived new role of the work force, so as to preserve the vocational skills but instill more general skills in order to meet the expectations of the employers and the professional bodies. The study will hope to contribute to a better understanding of the skills content in the curriculum for construction and in so doing, provide a case study that may be of relevance for related AD curricula.

TABLE OF CONTENTS

LIST OF FIGURES

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I especially want to express my deep appreciation to my supervisor Professor Leon Tikly, for his encouragement and his sensitive, patient and insightful advice throughout my program in the past seven long years.

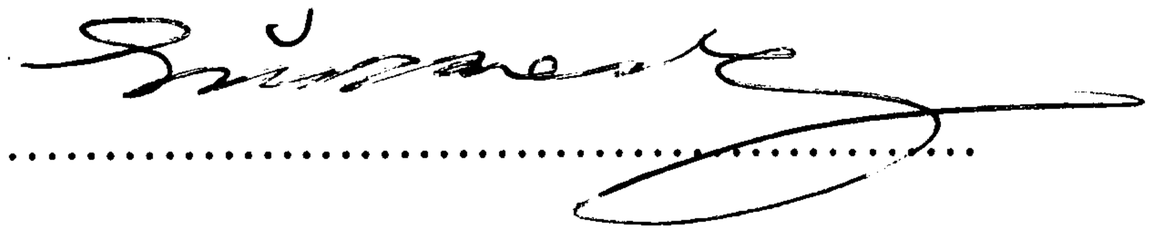
I am also heavily indebted to Catherine Cheng and Anuj Dawar for helping me in the typographical improvement of the older version of this dissertation.

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the Regulations of the University of Bristol. The work is original except where indicated by special reference in the text and no part of the thesis has been submitted for any other degree.

Any views expressed in this thesis are those of the author and in no way represent those of the University of Bristol.

The thesis has not been presented previously to any other University for examination in the United Kingdom or overseas.



Signed.....

Date: December 26, 2006

GLOSSARY & ACRONYM

Resilience. The first R of learning. The ability to tolerate a degree of strangeness. The willingness to have a go. The ability to 'read' learning situations correctly, to know when to explore and when to withdraw, and the willingness to tolerate the feelings that go along with learning, lay the foundations of this essential resilience. (Claxton, 1999: p.1)

Resourcefulness. The second R of learning. The range of learning tools and strategies that people develop and employ. The ability to ingeniously search for new ways to beat the problem. (Claxton, 1999: p.3)

Reflectiveness. The third R of learning. The inclination to stand back from learning and take a strategic view, combined with the awareness and self-awareness to do so accurately and successfully. The ability to stop and take stock of the situation and to ask oneself. (Claxton, 1999: p.4)

Vocational Skills. Generally refers to as job-specific skills (Command Auto CAD, read drawings and manuals, use codes of practice, select materials, design cables and details, write valuation reports and specification, take measurements - see Chapter 2).

General Skills. Also refers to as transferable skills, general educational skills, soft skills or other communication skills (Mandarin, English, information technology, common sense, problem solving, work attitude, interpersonal and social skills, management - see Chapter 2).

AD. Associate Degree.

HD. Higher Diploma.

HKCEE. Hong Kong Certificate of Education Examinations.

HKALE. Hong Kong Advanced Level Examinations.

ILETS. International English Language Tests.

VTC. Vocational Training Council.

VET. Vocational Education and Training.

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Historical Background

A new academic title called the Associate Degree was outlined in the Education Commission report of 2000. Apart from the intended revamping of the education system in Hong Kong, the report also points out that in the past, planning for the HE was targeted for the training of manpower for society. This suggests the need to look at the historical and economic development of Hong Kong as a basis for understanding current developments.

Endacott (1973) had studied Colonial Office Records and made a historical summary about the early development of Hong Kong. He stated that the small island emerged from a barren rock fishing port to become a British colony one and a half centuries ago. He further summarized that she functioned very well initially through providing entrepôt trades with China. Fifty years later, the colony gradually found it more advantageous to develop its own industries to meet the local needs, like the setting up of cement works and cotton spinning.

Endacott (1973) also wrote about the rapid change Hong Kong underwent after the Second World War. He saw the loss of the battle to the Japanese troops to be partly accounted for by the lack of local Chinese support. Subsequently the Colony suffered a harrowing Japanese Occupation. After this humiliation, when peace came again from 1945 onwards, there were new British policies to allow the Colony of Hong Kong to retreat. He suggested that as a result of these policies, Hong Kong advocated self-government and economic development to give higher living standards and general social betterment. He went on to follow how Hong Kong developed herself after the World War. He discovered that the birth of Red China in the Mainland from 1949 had forced Hong Kong to rapidly develop her industries in order to compete with the rest of the world. This was accomplished by grabbing the fleeing Chinese capital, people and knowledge that escaped from Communist China. In particular he noted that by 1971 wages steadily rose to give the Hong Kong Industrial worker the second highest standard of living in Asia. Throughout these stages of development, the colonial government introduced various vocational training in engineering, science, commerce to meet the emerging manpower needs in the territory.

1.2 The Background to Associate Degrees

Hong Kong returned to China in 1997. The reunion with the motherland also signified the complete opening of the closed door in China. To take the benefit of cheap land and labor in the Chinese Mainland, Hong Kong industrialists closed 90 per cent of the local industries and started new ones in the North, leaving a hollow industrialized city waiting to be transformed and an army of unemployed people. The education blueprint (Hong Kong Government, 2000) was an official policy to retrain the population which had skills that were more matched to the needs of the relocated industries than with Hong Kong's changing economy. Associate degrees came into being as part of this macro-economic development in Hong Kong. The AD curriculum was largely based on the requirements of the already established trades and the perceived new role of the work force. AD programs under study are publicly-funded, therefore there is an express official duty to ensure that the graduates' skills are appropriate for the community. The control is two-tiered. Firstly, under the control of the University Ordinance, the institution must exercise her statutory control to ensure that students receive the skills demanded by the community. Secondly, under the institution's quality assurance system, she has to enforce a sound system of teaching, learning and assessment. As such the roles of the institution and the students are regarded as a complete entity.

Chapter 1
Introduction

After the change in sovereignty, Hong Kong experienced a difficult[1] period of economic transformation. During the early years of the hand over, Hong Kong waited patiently for a new form of economy to emerge. As seen in many developed countries in the world, the service sector has become the natural substitute after the manufacturing sector is gone. Given the location of Hong Kong as a geographical hub in Asia, the Hong Kong 2004 (Hong Kong Government, 2004) suggested that "there is currently a revival of the original entrepôt trade port role of the nineteenth century but with some added service sector industries".

Levinson (2005) quoted the U.S. Statistical report that the service sector is the fastest-growing sector of the economy in terms of job growth. However, the figures also showed that the occupations in the sector are primarily low-paying and low career-mobility positions. Hong Kong has begun to concentrate on entrepôt trade industries including transport, storage, communications, wholesale, retail, trading, restaurant and hotels, together with the traditional industries in real estate, securities, finance, banking, insurance and business services. These industries are fast, mobile and flexible and demand high order

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[1] Hong Kong 2004 (Hong Kong Government, 2004) reports a high 6.8 per cent unemployment rate. The year also experienced a low birth rate, an extravagant consumption of public funds, for example in underutilized school buildings and for a public-funded rockn'roll concert, as well as many more negative economic changes.

skills and knowledge when compared with the manufacturing sector. These industries form the basis for the knowledge-based economy wherein the knowledge and skills acquired in a single professional field would no longer suffice.

This last statement is exemplified by Time (2005, p.36) which pointed out that "in a global economy, a slow economy will be poorly equipped to deal with the challenges of a fast-changing world". The chair manufacturing industry in Italy grew tenfold in the past as highly specialized artisans set up on their own firms, supplying individual parts to their neighbors who would then work them into the next stage of manufacturing process before passing that on to another firm. One artisan would just do leather upholstery, for example, or specialize in varnishes. The highly decentralized industrial structure, a type of extreme outsourcing network, is quite common in Manzano, Italy but has become obsolete. Faced by the recent challenges of the Chinese exporters who sell much cheaper chairs, these firms have experienced an economy slump and Time (2005, p.36) sees that it wasn't enough just to make chairs, but that they also need the skills to sell them. See Chapter 2 for an additional discussion on the effects of globalization.

Chapter 1
Introduction

The Present Context

Following the relocation of the industrial sector to the North after re-unification, wages in general have remained high which is not compatible with the "low-paying and low-mobility" positions in the service sector. Many have been unwilling to take a low wage but rather, have preferred to remain unemployed and to join the dole line. It is in this context that the government has started the latest revamping of education in a bid to alleviate the soaring redundancy rate. It was thought that the HE sector is able to provide students with multi-disciplinary learning experiences, which will broaden their knowledge base and vision, and will enhance their employability in various sectors. The above is a brief political and economical account of the provision of Associate Degrees in Hong Kong.

The Secretary for Education and Manpower commissioned Stewart R. Sutherland in 2002 to overhaul the HE sector. He has reported this in his *Higher Education in Hong Kong* in 2002. One of the results is the official endorsement of AD programs in Hong Kong. Sutherland (2002) reported directly to the University Grants Committee (UGC). The main recommendation concerning Associate Degrees, with the exception of some

"endangered species" programs, was that ADs must be self-financing. Recent reports have shown that all the above targets have been satisfied (Mingpao, 2005). With the blessing of the Chief Executive, many community colleges containing AD programs were created. The rapid realization of these programs was a result of the reliance on existing resources in the HE sector. Along with some new community colleges created by other charities or missionary organizations, at least six current universities have offered AD programs. These university-run community colleges have an existing and ready-to-use quality assurance system and therefore, programs can be created under the same umbrella as the other existing undergraduate programs. Furthermore, many existing teaching staff members were asked to administer the creation of ADs, while part timers were hired to teach most of the courses. Additional campus spaces have been leased from neighboring private commercial complexes taking advantage of the falling real estate rents. Programs were designed to meet the service sector demands so as to attract more applicants and to make the self-financing programs financially viable.

Associate Degrees have emerged only recently. Although there are already many graduates, the concept and usefulness of AD programs are still not clear as far as many parents and employers are concerned. In a popular radio phone-

in career counseling program[2] during the weekend evenings, students and parents alike phoned in to raise questions about this academic title. Many questions asked were quite fundamental and required only quick clarification. Associate Degree programs on culmination award graduates with titles including Associate of Arts or Associate of Science. In many sectors of Hong Kong, the Chinese translation for it literally means "deputy degree", meaning "not-a-regular" degree. Some parents are quite reluctant to pay the full tuition fee because the end title is only "a part of the full". Many parents were expecting the "deputy degree" holder to be promoted to a "full degree" but automatic articulation to a formal undergraduate degree program just was not readily available. Mingpao (2005) reported that in the academic year 2004/2005 such an articulation rate was only 8 per cent. This reveals that ADs have not been widely recognized, making it difficult for AD graduates to further their studies in Hong Kong. Some parents criticized this as a "dead end" award. Therefore, Hong Kong people are demanding a fuller explanation as to the nature of this new species of academic award.

Many providers have tried to find the most popular curriculum for their own programs, resulting in very diverse results from different institutions. For

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[2] Counseling programs hosted by Ms Si Mei-Chun and broadcasted by Radio Station FM881 of Commercial Radio of Hong Kong.

example, one provider, the School of Professional and Continuing Education (SPACE) stressed the importance of holistic education. SPACE (2003) stated that "The Associate Degree Programs allow students choice of subjects according to their interests and abilities. Emphasis is put on providing holistic education for students to equip them with the competence to form judgments and shoulder responsibilities". To illustrate with an example, in logistics study, SPACE wants the students to improve language proficiency, analytical and communications skills, besides the mainstream study.

From this initial literature exposition, it may be reflected that Associate Degree programs in our institution may be able to provide far more than simply meeting the employers' expectations. They stress both the exposure of our graduates to a multi-intellectual environment and providing them with the opportunity of ultimately progressing to a bachelor degree. The question arises, however, as to whether these newly packaged Associate Degree Programs which are vocational in nature can lead to the accomplishment of these objectives. Should we change the courses along the lines of recommendations of institutions such as "SPACE", i.e. to allow students a 'holistic education to form judgments and shoulder responsibilities'?

In some respects this is an old dichotomy that has in the past been outlined by Vocational Education and Training (VET) authorities like Grubb although the dichotomy arises in a new form in relation to AD programs. Grubb and Ryan (1999), for example wrote that one of the most wide-ranging discussions has focused on whether pre-employment education should be academic or vocational, or some mixture of the two. Of course, this issue is just as contentious in developed countries as it is elsewhere in the world: the English-speaking countries are all wrestling with different forms of integrated schooling, and even the much-praised German dual system is being threatened by more students wanting to continue in academic rather than vocational tracks.

Further, although the curriculum of the program I am studying is apparently geared towards employers' need, what in fact do employers and other stakeholders have to say about our present curriculum? If there is a mismatch between the curriculum content and their needs, what needs to be changed to make the curriculum more relevant? These are the queries that I would like to provide answers for in this dissertation.

1.3 The Key Stakeholders

Grubb and Ryan (1999, p.8) stated that Vocational Education and Training (VET) can be sponsored by various parties. They defined sponsorship as the primary responsibility for organizing and financing training, but not necessarily for providing training directly. They further adopted that there are three categories of training sponsorship: employer, individual and government. Employer sponsorship covers all the training that employers organize for their employees. Individual sponsorship refers to the training that workers, both prospective and current, organize for themselves, with a view to improving their employment prospects. Government sponsorship includes VET organized by public agencies both for young people in secondary education and for workers other than their own employees.

The above categories of sponsorship will fit into my types of key stakeholders except "individual". There are no students from the Associate Degree programs who are not fresh Form 7 graduates, so this category of individual sponsorship does not exist independently in my research. Students will appear as a coherent part of the academic institution because what they can learn and be taught are stated in the promulgated program curriculum. In the institution a particularly strong system of quality assurance has been in placed since 1993.

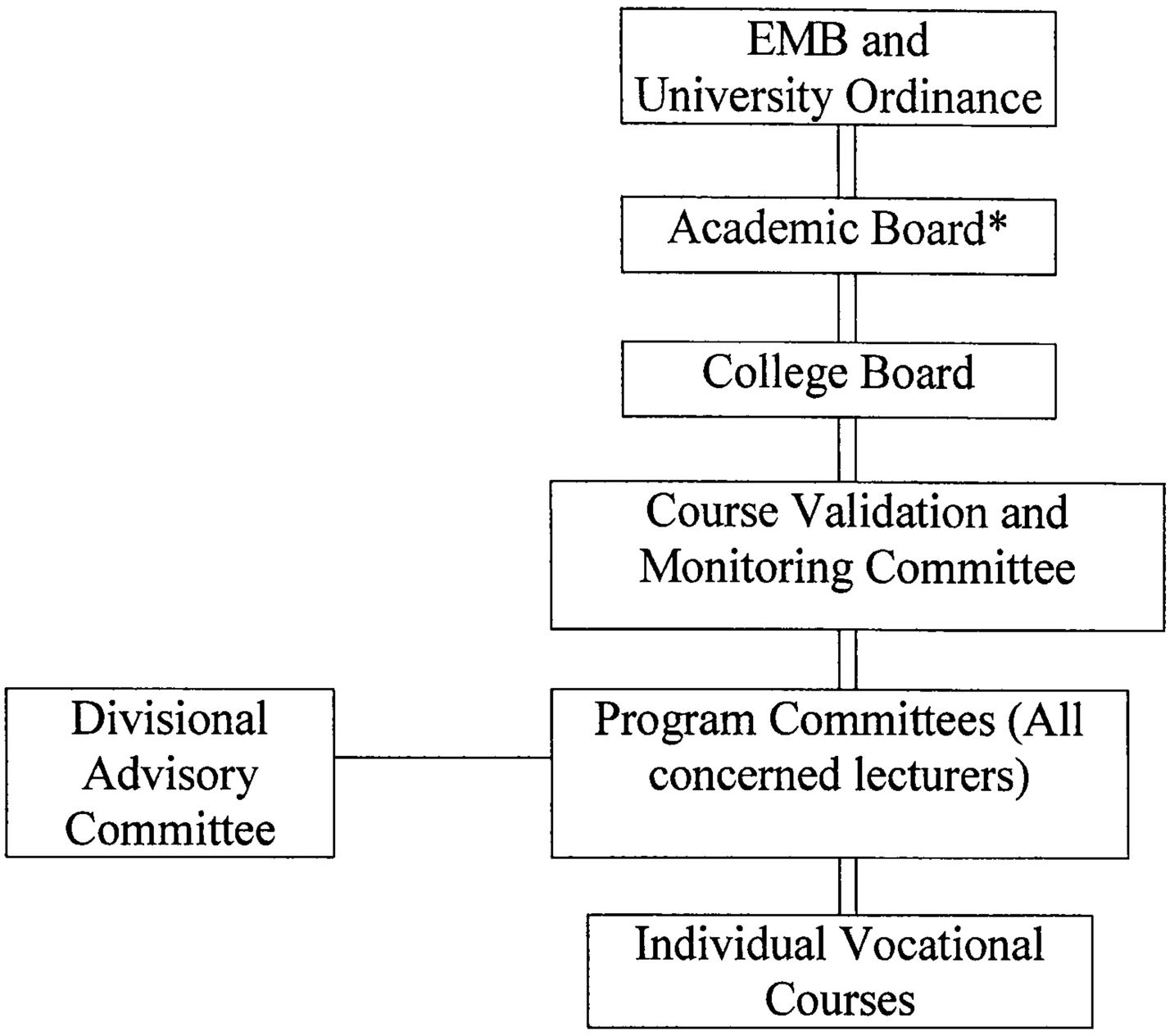
Chapter 1
Introduction

The terms of reference of the Quality Assurance Committee (QAC, 2006) have been manifestly clear as to: on behalf of the Senate, to promote quality assurance in the institution and to foster a culture of quality assurance; to advise the Senate on principles, policies and procedures relating to the quality assurance of teaching, learning and assessment in the University; to assist the Senate, to establish arrangements to promote self-reflection and peer review of teaching, learning and assessment in line with Senate's QA principles, policies and practices, etc. Although the students' role is not separately made out clearly, their vested interests spelt out in the curriculum aims and objectives will nevertheless be protected through the rigorous control of the quality assurance system. Therefore the interests of both the institution and the students are amalgamated as one. However, Grubb and Ryan's sponsorship will be boiled down to include only employer and government, but I will add two more key stakeholders which are the academic institution and the related professional bodies with explanations later.

For government-funded Associate Degree Programs that I am studying, it is logical to accept the Government to be the first key stakeholder. The Government exercises her control over the institution through statutes to ensure that the students receive the skills demanded by the community. CityU (1999) has given a list of Statutes governing the process of monitoring. In

Statute 6 section 1 (b), the Ordinance empowers the Senate (previously the Academic Board) to plan, approve, develop, maintain, regulate and promote all teaching, programs of study, research and other academic work in the University, and to formulate policies accordingly. In Statute 8 section 2 (3) (d), within the policies, procedures and priorities of the Senate, the College Board shall be responsible for the establishment, maintenance and monitoring of academic standards in the College through the receipt of reports from Program Committees and the review of assessment results, and reporting thereon annually to the Senate. In the same section but in (3) (e), the College Board shall be responsible for the approval of minor changes to any course or program offered by the College and making recommendations to the Senate on any major changes.

Therefore in the decision making process, the Government exercises the power to control the institution through enactments. Under the ordinance, the Senate establishes the College Board allowing individual program committees to manage curricula. Under the above scenario, government (EMB) and institution are two key stakeholders on AD curriculum development. A graphical representation is as follows:



Course Curriculum Approval Procedure in the Institution
(*Academic Board = Senate)

As the diagram shows, veto can take place in every step within the hierarchy which is represented by the double line links. However, advice and suggestion are given by advisory committees which are persuasive and are shown as a single line link in the above graphical representation. The student can be a key stakeholder because the institution includes him as part of the whole.

However, the third key stakeholder is the employers who are important sponsors. Employers participate in the AD affairs in various ways: employers are regularly surveyed to take opinions about the movements and needs of the

industry; they are nominated as members of the Divisional Advisory Committee to be consulted; and they are selected to be members of the Program Validation Committee when new programs are initiated. Their voices are highly respected and opinions are taken very seriously. However, the whole mechanism is built under the system of the University, for example, in Statute 8 (CityU, 1999) section 2 (6), the College Board will be made responsible by the Senate to make recommendations on the Chairmanships of Program Advisory Committees or any equivalent body, and the Principal of the College on the membership of such committees. The participation of the employers in these committees can ensure that the programs meet the community needs. This external key stakeholder can influence the program content and further veto the types of skill content in the AD curriculum. Some enthusiastic and passionate employers have close links with students during the summer internship, career talks, in judging final year projects, attending grant and scholarship award ceremonies, executive mentoring schemes and the like. Therefore, although there are no direct funding relationships between employers and AD programs, the liaison and coordination role of the employers has been strong.

The fourth key stakeholder is the professional bodies. Their involvement is expected to improve credibility and recognition of the AD programs. The

endorsement will add allurement to employers who look for good quality graduates. Job entry for the AD graduates will be enhanced through their certification. These professional bodies have in the past conducted piloting validation panel visit to assess the program standard. Their attention and concentration in segments of the curriculum will have a strong influence on the choice of teaching materials.

The above description clearly outlines the current dilemma regarding the Associate Degree curricula in Hong Kong and the various key stakeholders whose views hold relevance, and consequential sway, in design of curricula. From the funding point of view, the government sponsor is keen to achieve value for money for the sake of public accountability. The academic institution, the academic staff and the students are categorically regarded as the second key stakeholder who will follow the government's footsteps to maintain the AD programs relevant to the industry. Next it will be the employer who is desirous of getting the appropriately-skilled graduates when needed. The final key stakeholder is the professional bodies whose support to the AD curriculum will possibly give rise to the recruitment of a team of willing and readily obedient graduates to be their budding members in the future.

1.4 COMPONENTS OF THE PROBLEM

1.4.1 The Academic Status of Associate Degrees

The Calendar (CityU, 2005) contrasts between the individual entrance requirements for Bachelor Degree and Associate Degree Programs. Students enter AD programs after Form 7 and are drawn from the same pool of students as their undergrad degree counterparts, but they generally have weaker Hong Kong Advanced Level Examination (HKALE) results.[3] I have drawn a progression hierarchy depicting the relationship between secondary school and university entitled the "Existing Education System in Hong Kong" which is now appended to the end of this dissertation, it is quite logical to see that no students who are admitted into bachelor degree programs would bother to consider entering Associate Degree programs. The reality is that most Associate Degree students are Form 7 Graduates who did not do so well in the HKALE and have not managed to gain admission to degree programs. Associate Degree students are aged 19+, and are of the same age as the bachelor degree students. Because they are one year shorter, the Associate Degree programs effectively act as fast-track programs, generating graduates

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[3] General Entrance Requirements (CityU, 2005, pp 54-55) for the Bachelor's Degree and Associate Degree Programs differ by, among other things, one grade E or above in one A-level subject.

faster than the ordinary three-year undergraduate degree programs and feeding employment.

1.4.2 Types of Associate Degrees

The types of Associate Degrees under study include four construction-related programs. The programs are 2-year long in a full-time study mode. Their admission requirements are slightly lower than for the Bachelor Degree programs. The programs to be looked at are respectively entitled the Associate of Science in Architectural Studies, Building Services Engineering, Construction Engineering & Management and Surveying. All of these programs have their corresponding Bachelor Degree programs in Universities in Hong Kong, and graduates from the lower tier degree have an opportunity to be accepted to the upper tier degree. The Associate Degree programs are internally and professionally accredited, rendering them recognized as highly competent, top quality and para-professional curricula in Hong Kong. These programs are chosen to be studied because they once had a purely vocational curriculum and therefore represent an interesting case in relation to the vocational versus academic debate mentioned above (see also Chapter 2). This is particularly the case as the admitted Form 7 students have no experience of

vocational education. The total number of students in the cohort is close to 400 per annum which is a fairly large population and provides a typical and representative sample for the study.

1.4.3 The Skills Generally Sought By The Employers

Graduates of Associate Degree Programs will ultimately become employees in some workplaces. It is important to consider the views of the employers regarding what vocational and educational skills are relevant for graduates. Employers want graduates to be conversant with the skills that enable the process of capital accumulation to proceed without interruption. As such, they want their employees to possess four distinct areas of skills: Job-specific skills; basic academic skills; motivation and interpersonal skills, and; certain more elusive skills, including aptitude and "common sense" (Grubb, 1996). Levinson (2005) also stated a list of necessary skills for the transportation, distribution, and logistics cluster: communication skills; problem solving and critical thinking; proficiency in information technology applications; leadership and team skills. There are similarities between the lists although they are almost a decade apart!

1.4.4 The Skills Sought by Hong Kong Employers

EMB (1998) found that the attributes required by employers in Hong Kong were not significantly different from the above list which was based on Grubb's research (Grubb, 1996) in the United States although the EMB includes Chinese and English Proficiency; Numerical Competency, Information Technology Literacy; Analytical and Problem-solving Abilities; Work Attitude; Inter-personal Skills; and Management Skills.

A visit to the Labor Department of the Hong Kong Government reveals a similar list of skills that Hong Kong Employers seek in their prospective employees. Detailed findings have been tabulated in Chapter 4, but as an introduction, I am picking up the salient points here. As my study was based on construction related jobs, I have summarized the job requirements of the employers as consisting of the following four skill categories: Computer Literacy; Language (English and Chinese) Skills; Interpersonal Skills; Intrapersonal Skills and Other Vocational Skills like the possession of a site safety green card.

These skills are respectively printed on an output slip given to the job seekers in the Labor Department. These skills are seen to perform a major role within the hiring specification. If these are so significant, shouldn't the Associate Degree curriculum follow suit and be designed in such a way as to provide training to reflect this level of importance? What should be the proportion of these required skills in the present AD programs? What preference does the existing Associate Degree program show with respect to vocational and general educational skills?

1.4.5 Can Our Programs Meet These Requirements?

I have collected curriculum information for the four Associate Degree programs in my institution. Chapter 4 sets out these findings. The results show that the curricula are vocationally oriented with a content ratio of 74 to 26. The figure 74 represents the percentage of vocational education whereas 26 is the percentage of general education. A brief look at the "26 per cent" general education shows that only courses in Chinese Civilization and English Communication are skills needed by the employers, but where are the other skills pointed out by Grubb and wanted by other employers in Hong Kong?

1.4.6 General Education Defined by the EMB

I have collected some official skill types endorsed by the Hong Kong Government. Based on the EMB's survey in 1998 entitled "Survey on Opinions of Employers on Major Aspects of Performance of 1998 First Degree Graduates", a number of attributes are listed for inquiry. In this survey, the language used is different and the EMB did not use the term "general education", however, the types of skills listed are very close to the espoused skills (Grubb, 1996; Levinson, 2005) that students should pick up in the course of their university study. These skills serve the purpose of my study and therefore, I have treated them as the official descriptions for the term "general education" in contrast to the vocational skills.

1.4.7 My Own Position in the Study

Chapter 1
Introduction

I am a professional surveyor and in my own institution I have been teaching the higher diploma (HD) programs related to the building industry. These programs were vocational which followed the education line adopted by the Hong Kong colonial government before Hong Kong was handed over. My role was a program leader for "HD in Surveying" between the year 1994 and 1999. My responsibility was both academic and managerial which is to make sure that the program committee be accountable to the College Board and further to the Senate. Since 2000, HD programs in the institution have been re-named as Associate Degree programs and my previous role did not continue. However, I noticed that apart from a few superficial modifications (like condensing them from a three-year to a two-year programs, raising the entrance requirements from a Form 5 to a Form 7 level[4]) the programs have maintained the objectives and curriculum content of the HD almost unchanged. These programs have been run under a mission that is not only preparing graduates for employment with competitive edges in the industrial, commercial and public sector in Hong Kong and different parts of the world, but is also laying a sound foundation for their lifelong learning. At the present moment, the teaching of the skills and therefore, the proposed curriculum are to be changed. The change came about as a result of the drive by a new role statement of the institution, so that the education role will aim to offer

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[4] For many years the programs have, however, admitted a majority of Form 7 graduates because this provided a sufficient pool of candidates.

professional oriented programs recognized at an internationally competitive level, plus the emphasis for whole person development and professional competences and skills. At this juncture the institution will ensure the students' acquiring of useful knowledge, communicative skills and analytical abilities, the skills so acquired will be very different from the purely vocational ones that were previously focused on. I am interested to find out the differences and improvements brought about by these changes. As an academic caught up in the changes I was inspired to undertake this study because of concern that the institution had not gone far enough to address the nature of the proposed changes in the shift to an Associate Degree. I am writing from the point of view of a practitioner but one who has become aware of the wider shifts in policy taking place. This becomes especially compelling as a result of having studied for the Doctor of Education Program in the middle of my career. However, in the later interview with the present program leaders, I have met considerable difficulty in arriving at a critical view on the change to the present AD curriculum. I will detail this value orientation issue in the ethical discussion in Chapter 3.

At this point it is only appropriate at this stage to outline the aims of the current study.

1.5 AIMS

My investigation has two aims:

1. To explore the relative proportion of job-specific skills in relation to academic skills content in the curriculum for Associate Degree students in the area of construction related industry;
2. To assess the views of the key stakeholders regarding the relevance of the existing AD curriculum for satisfying their needs with respect to the balance between vocational and general educational content for meeting the needs of a knowledge economy.

1.6 RESEARCH QUESTIONS

In order to accomplish the above aims, I base my investigation on the following research questions.

1. What are the factors that have shaped the existing AD curriculum in my institution?
2. How are vocational and general educational skills defined in the existing Associate Degree curriculum for construction in my institution?
3. What is the balance between these two kinds of skills in the AD curriculum?
4. What are the views of employers, government officials, program leaders and professional bodies concerning the relevance of the skills taught in the existing AD programs which have been inherited from the HD programs?
5. What vocational and general educational skills do some of the key stakeholders think are relevant for graduates and that should be taught in the AD curriculum and what should be the relative balance between these two types of skill?

1.7 ORGAINIZATION OF THE REMAINING CHAPTERS

Chapter 1
Introduction

What follows is a summary of the investigation I have carried out to answer the above research questions. Chapter 2 contains a review of the related literature on AD as part of the vocational and education training in Hong Kong and other places. Chapter 3 describes the sample, location, methodology, instrumentation, and data analysis procedures. Chapter 4 presents the findings of the study, and Chapter 5 includes the summary, conclusions, recommendations and areas for future research.

PAGE NUMBERING AS ORIGINAL

CHAPTER 2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

The purpose of this chapter is to a) review the general literature relating to the content of the curriculum of vocational education in Hong Kong; and b) to provide a theoretical framework for understanding the relationship between general and vocational education in the AD curriculum.

AD is a new academic title in the education system in Hong Kong, however, there is a century old history of the vocational education system to which AD programs are attached. The review will also look at the historical and theoretical context of vocational education within which to my study is located.

Considering the above purposes and context of the study, the literature review addresses the following areas: a) definitions of vocational education relevant for AD programs; b) definitions of the general education curriculum; c) the development of vocational education curricula in Hong Kong and the recorded debates on these curricula; d) the debate about the content of the vocational curriculum in the era of globalization: comparative perspectives; and, e) the

literature on the role of different stakeholders and on understanding employers' need in relation to curriculum design.

The literature discussed ultimately helped to shape the concluding section of the Chapter which delineates the broad approach adopted in terms of theoretical and methodological assumptions.

2.1 LITERATURE REVIEW

2.1.1 Education and Manpower Bureau's Role towards Associate Degrees

The AD's first word, "Associate", is not only difficult for local Chinese tongues to pronounce correctly, but as has been reported in the media in Hong Kong, few employees and parents understand how it was conceptualized, its purpose or its academic standing. The Education and Manpower Bureau (EMB) revealed that Associate Degree providers have increased from a mere four to a total of over twenty in Hong Kong. It is, therefore, apt to investigate the nature of this new and proliferating qualification and to find out what curriculum best suits the academic program which bears this title from the

point of view of key stakeholders, which include the EMB, the employers and the program leaders.

When we study the regulatory framework and governance structure (Hong Kong SAR, 2004), we see that the Secretary for Education and Manpower heads the Education and Manpower Bureau of the Government Secretariat, who also formulates and reviews education policy, secures funds in the Government Budget, and oversees the effective implementation of educational programs. The Permanent Secretary for Education and Manpower assists in formulating, coordinating and implementing education policies with the support of the bureau. As there was a 4.3% spending of the Gross Domestic Product on Education in the year 2004-2005, there is a strong need for the Government to be cautious on how the funding has been used. Under the EMB there are various arms of policy makers and controllers such as the University Grants Committee and the Curriculum Development Council, who help to make sure that the above aim is closely followed. In respect of the key stakeholders' preference, it is imperative that the fund-holder's view should be studied, I would however treat all the public sector department or agents as simply representing the Hong Kong SAR.

Chapter 2
Literature Review

The Chief Executive announced in his 2000 Policy Address that 60% of the 17-20 age group should have access to post-secondary education by the year 2010-11 school year. The Hong Kong Special Administration Region (SAR) Government has introduced AD to meet the needs of a changing economy. This has caused a change in curriculum content and involved a new balance between vocational and general educational skills. In 2000 the higher education (HE) sector introduced ADs with the aim of providing the new kinds of skills required in the market. This study will focus on one specific area of ADs, namely those related to the construction industry. These are fully funded by the Government. Here, despite the existence of some limited evidence, little is actually known about the kinds of skills that are actually required in the labor market and the balance between vocational and general educational skills. There is a need, therefore, to ascertain the views of key stakeholders about the skills required for a changing labor market including the balance between vocational and general educational skills and the underlying factors shaping these views. In this way the study will hope to contribute to a better understanding of the skills content in the curriculum for construction and in so doing, provide a case study that may be of relevance for related AD curricula in other areas.

2.1.2 Concepts, Rationales, Functions and Development of ADs

According to the findings of the Federation for Continuing Education in Tertiary Institutions (FCE, 2001), it is briefly reported that AD has become part of the HE sector only recently. They state that in the past it has always been the university bachelor degree or a vocationally oriented higher diploma being the mainstream. To develop a more diversified HE structure, AD provides another alternative for many students who do not feel that a traditional qualification will suit them. AD has therefore added to the Higher Education system in Hong Kong. Further, Hong Kong has moved towards a hi-tech and knowledge-based economy, there is an urgent need for a larger percentage of work force to have an educational level that is above and beyond the basic secondary school education. The traditional Forms 6-7 program does not suffice because many feel that the curriculum there is too narrowly focused. By emphasizing a mixture of broad-based education plus practical specialism, AD program can open up access to HE and at the same time contribute to the upgrading of the human capital of Hong Kong in a way that can meet the requirement of the new era.

The FCE has also proposed an objective for the Associate Degrees in Hong Kong, which is to provide enriching education at post-secondary and sub-

degree level that prepares the students for work, leisure, further study and active citizenship. This is a general objective that I do not think will suit the construction-related programs I am now studying. I think this will not function well as vocational programs are more demanding in the skills students need to be trained.

In response to the Chief Executive's call as mentioned in 2.1.1 above to widen the access the HE sector, several tertiary institutions including the HKU, the CityU, the HKBU have launched a new type of AD program in the autumn semester of 2000. Loosely based on the North American AD model, graduates of the program are in general expected to articulate to the second year of the local or overseas university curriculum. It was reported (FCE, 2001) that the response to this new type of AD program was overwhelming – with high applicants to place ratios. In view of this huge demand, all other UGC-funded institutions also plan to offer AD or equivalent programs in the following semester.

2.1.3 Vocational Education Research

Levinson (2005) employed the term "vocational" to describe those programs that are oriented toward training for the workforce. But in America, especially

in community colleges, the term is typically associated with Applied Science programs that are intended to prepare students for immediate entry into the world of work, in contrast to Associate of Science or Arts programs, which are oriented more towards transferal to a four-year college degree.

Traditionally, VET systems can induce economic effects. Grubb and Ryan (1999) indicated vocational education as being an attractive alternative to social welfare payments, since it promised to create wealth rather than to redistribute it. This explains why the Government is keen on developing vocational education. In a study to trace the experience of 19 countries in reforming their VET policies, Gill, Fluitman and Dar (2000) stated that many governments often expect their vocational and training system to perform feats that they would not expect from other systems such as general education. They classified contemporary vocational education into the following broad headings: secondary and postsecondary vocational and technical education, pre-employment vocational training, and in-service or on-the-job training. In my study I have investigated AD program in the HE. Therefore, it would be categorized as belonging to the "secondary and postsecondary vocational and technical education" classification. They have also compared vocational education to general education. In their opinion, Vocational education is distinguished from general education by its higher cost of delivery and by the

options it opens or closes at the secondary and postsecondary levels - secondary level vocational education terminates at polytechnics.

In the UK, Little (2003) found that vocational higher education is valued highly by employers as an alternative to a first degree. In her study, she showed that tried-and-tested qualifications such as HNDs and HNCs (higher national diplomas and certificates) were well-regarded, particularly in the construction and engineering industries. It was also found that vocational higher education was very fragmented and served diverse functions – as a route into professional membership, a pathway to more advanced higher education, a way of meeting employers' needs in niche areas and improving professional practice or, as a vehicle for individuals seeking advancement or a career change. Notwithstanding this, she also found that some employers still preferred to recruit graduates, particularly where greater breadth or generic behavioral and analytical skills were needed. Little (2003) has also looked at the views of students' concerning their future workplace. A majority of students believed that employers used qualifications as a screening device and gave preference to recruits with the right qualifications, usually full degrees but, other students felt that the practical nature of sub-degrees, plus the commitment shown by studying part-time, would be attractive to employers. This UK focused research had implications for the present study because it

provided me with diversified views of two VET systems which have a similar (British) origin but are now pursuing practical education only / general education only, or a system amalgamating both in the curricula.

2.1.4 General Education Curriculum

Not all vocational training programs are skill and craft based. Gill, Fluitman and Dar (2000) explored the proportion of practical to theoretical instructions in the curricula. South Korea is a newly developed country with similar economic achievement to that of Hong Kong. They found the curriculum for school-based vocational education in South Korea to be 70 per cent theoretical and 30 per cent practical, but these ratios were reversed in training institutes. In South Korea, parents have a strong voice and demand to allow graduates to further study, consequently there is strong pressure to converge from vocational to general education in the secondary school education, and to opt for the curricula with a higher proportion of theoretical study.

Gill, Fluitman and Dar (2000) further espoused the use of the current German approach to VET, commonly referred to as the Dual System. They claimed

that the system relied on the schools and employers to provide vocational education and occupational training simultaneously, by combining work and study in a single program. Theoretical aspects of training were provided in publicly financed vocational schools but with practical aspects in firms that provide and finance apprenticeships. I have studied the Dual System in my dissertation because it emphasizes both the general and vocational education which may become a future trend for AD programs. In Chapter 4, one of my interviewees has advocated this form of curriculum to integrate experience of work and study in one single program. This system has also shown similarities with the old HK Government practice which uses an apprenticeship program allowing working technicians to attend part time study programs to gain their requisite paper qualifications. Similarly the Youth Training program in Hong Kong, like the Dual System in Germany, aims to equip fresh Form 5 graduates with the necessary work experience thereby enhancing the theoretical and vocational skills of the work force.

Grubb and Ryan (1999) have defined VET programs in their study. They distinguished training programs from vocational education programs. They stated that programs that convey competencies are useful only within a single firm, or within a narrowly defined occupation, are denoted as training programs; whereas programs which contain a mixture of general education

and occupationally specific training may be considered vocational education. This is exactly the core reference point for my study in the curriculum of AD programs. Grubb and Ryan's classification obviously considered a mixture of general and vocational education to be useful in the wider sense. They further established some criteria regarding the basis for setting up vocational programs. It is claimed that general education does not typically intend to prepare individuals for specific occupations, while vocational education and job training clearly do. They reviewed the models of vocational education and note that with increased interest in many countries in broader forms of vocational education which integrate more academic competencies, some forms of vocational education have moved closer to academic or general education. This is the case with the Associate Degree programs (see Chapter 4) and the present study has attempted to determine the curriculum preference from the key stakeholders' viewpoint.

Grubb (1996) clearly elaborated his four skills. The job-specific skills were thought as being characterized by the familiarity with a specific machine, or a particular manufacturing process, or the competency in a procedure in taking measurements as in land surveying. Grubb reported from his study that many employers had been complaining that the skills learned by the graduates were too general and could not meet their needs. A second skill group discussed by

Grubb was the academic skills of doing basic reading, writing and arithmetic. Grubb found employers within the sub-baccalaurate labor market frequently mentioning the need for technicians to be able to read instructions and to use repair manuals, make appropriate calculations on their own, and to compute in order to work out some problems. Grubb suggested the third area of skills as being motivation, initiative, judgment and appropriate attitude. To many employers, these communication and interpersonal and intrapersonal skills are equally important, if not more important than the technical and job-specific skills. Finally, it is aptitude and common sense which is an elusive skill that employers mentioned a lot during Grubb's interview and study[5]. He found these skills difficult to define. According to Grubb, the aptitude of a technician would help to speed up production and minimize errors and this particular quality would hence lead to greater job satisfaction on the part of employees. Common sense is the judgment required in a work situation in order to avoid mistakes and is also the ability to apply knowledge from books or other sources in production settings.

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[5] Grubb (1996) used the data collected from the interviews with employers and education providers as qualitative evidence that provides better information about how jobs are organized in the sub-baccalaureate labor market, the skills that employers are looking for; and the use they make (or fail to make) of credentials from postsecondary institutions. More of these have been included in Chapter 2 Related Research.

Levinson (2005) quoted the array of transferable skills for the Transportation, Distribution, and Logistics cluster in the service industry. They are communications skills, problem solving and critical thinking, proficiency in information technology applications and finally leadership and team skills. These skills are required because the modern workplace is increasingly based upon a high-performance organizational model.

Shaw (1999) emphasized that vocational education in a knowledge economy should shift to general education, as existing vocational approaches tend to emphasize workplace hierarchy, attention to rules, to preach compliance and passivity. The programs should rather pay more attention to the critical thinking skills needed to prepare students for the workplace. I think this is important as general education should instill students to acquire critical thinking ability as a higher order skill. It is advocated, for example, that it is necessary to design a curriculum that would not just teach students how to get a job in a restaurant, but would lead them to inquire why so many of the prospective employers have only minimum-wage (lowest wage allowable by the Law) jobs to offer. This would lead students to question and critique their positions in society and discuss opportunities in collaboration with other students.

2.1.5 Development of Vocational Education in Hong Kong

Bray (1999), drawing on a human capital approach, stated that investment in higher education would increase the productivity for further economic growth. According to human capital theory, education contributes directly to the growth of national income by improving the skills and productive capacities of the labor force. In Chapter 1, I have outlined the historical development of Hong Kong from a wide perspective to see her role change from entrepôt to manufacturing and then back to entrepôt. Herein, the focus is now moved to the early part of Hong Kong history to see her development in vocational education.

Although no consistent policy in practical education to train the work force can be detected, there were intermittent measures in VET development hoping to satisfy the community need. For example, Endacott (1973) reported that a previous Governor of Hong Kong, Sir William Robinson (governor between 1891-1898) argued that the Colony should be less dependent on trade, and would be more independent if it developed its own industries. Consequent to this, in 1897, Green Island cement works was moved from Macau (a

neighboring city) to the Colony and also the first company for cotton spinning was formed. Around this period, Hong Kong underwent a plague[6] which had wide repercussions on the education system of Hong Kong. The government found how little the Chinese community knew about the West like organized sanitation, medicine and therefore, it led to the demand to teach more English-related culture in schools. By 1905, all schools had added a new course in sanitation and soon the plague disappeared. Two years later, another Governor Sir Mathew Nathan, keenly advocated the setting up of the Hong Kong Technical Institute[7]. In 1933, the Government started a 3-year junior vocational[8] school to admit 11-12 years old students from the Chinese language schools. In 1936 a 3-year senior technical school was opened teaching up-to-date courses[9]. After the Second World War, the Government took positive steps to encourage VET to ensure that the emerging manufacturing sector was supported by the development of necessary skills, for example, in 1956 the Technical College was formally established and later transformed into a Hong Kong Polytechnic in 1972. Vocational education was made the responsibility of the Vocational Training Council established in 1982

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[6] Over a thousand people lost their lives every year for no found medical reasons since 1894. Some even took new-born babies' eyes as medicine but to no avail.

[7] The first vocational institute in Hong Kong which established evening classes in engineering, science and commerce in October 1907, and which also undertook the training of teachers.

[8] The junior vocational school trained junior craftsman students to learn workshop practice, engineering drawing, metal molding and manufacturing in the curriculum.

[9] The curriculum included wireless, construction and auto works.

under the Vocational Training Council (1982) Ordinance. A new City Polytechnic of Hong Kong was added in 1984 to continue the effort. (Hong Kong Education Resource Centre, 2004).

The above depicts the very keen efforts made by the Government over the years to ensure a strong support in the VET to provide skilled workers to meet the economy need. It has proven to be a great success to supply a promising and skilled workforce during the stage of economic take-off over the last three decades in Hong Kong.

After becoming the Hong Kong Special Administrative Region in 1997, Hong Kong has encountered policy changes to many sectors of the community. This has been especially true in education where innovations have been adopted for implementation. One example is Associate Degree program which is of American origin. According to the literature, the degree can be dated back to the year 1893 in Chicago[10] (Quigley and Bailey, 2003). In a similar vein, after the change of sovereignty in 1997, a change in the economic conditions in Hong Kong has also prompted a need for the education system to cope with the changing needs of the employers. It is this feature that I will discuss below.

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[10] Later on, junior colleges proliferated in the United States due to the growing importance of technology and science when America was shifting from a country essentially based on agriculture to one predominantly grounded in manufacturing.

I have made widespread reference to the study by Grubb (1999) relating to the teaching in community colleges. He has completed observations in academic institutions and has interviewed over 260 instructors and 60 administrators. Community colleges are, according to Grubb, called second-chance institutions which provide a second track within higher education for students whose motivation and performance in earlier schooling was inadequate to gain them admission to four-year colleges. The research has compared curricula in different academic institutions in relation to their vocational and general academic content and therefore, it is relevant for my present study. Later in this Chapter I consider the results of Grubb's study in relation to my research questions. In particular I attempt to identify the most significant factors influencing the preferences of these academic institutions.

2.1.6 Vocational Curriculum in the Era of Globalization

Chapter 2
Literature Review

In the Policy Address of 2001 (Hong Kong Government, 2001), Tung Chee Hwa and his government foresaw the advent of the knowledge economy and put forward a bold step to increase the number of participating higher education students. The term knowledge economy has been defined by Levinson (2005) as an economic system in which economic wealth is increasingly the product of high-order cognitive processes. In a knowledge economy, knowledge has a commodifying effect and adds value to production analogous to manufacturing or capital inputs.

Shaw (1999) described these changes as a postindustrial shift, characterized by a move from the production of material goods as being the primary source of capital and exchange, to a highly technical and service-oriented economy. Several changes have been predominant. Among them have been the growth and rising prestige of a new professional class, and the greater importance of technical knowledge. Computer skills, for example are now highly prized if not essential for workers in this new economy. The deindustrialization of society has also resulted in the shutdown of many factories and the movement of these concerns overseas. Many workers lost jobs, and with few marketable skills have had difficulty finding work for comparable wages. As described in Chapter 1, the phenomenon of deindustrialization is taking place in Hong Kong. Since the relocation of 90 per cent of the industries to the mainland,

there is a grave concern, as expressed by the Tung Chee Hwa Government that the territory needs to equip its workers with new skills.

Tikly et al (2003) indicated that according to Collier and Dollar (2002) globalization is not a new phenomenon and that there have been three main waves of globalization: the first wave which commenced in 1870 and lasted 45 years saw the rapid integration of national economies fueled by falling transport costs; between 1914 and 1945, trade barriers prevailed causing the previous effect to fall, but after 1945, the second wave occurred which gave a return to the first wave; and the third wave, among other things, dated from 1980 - during this wave world trade has grown massively and it is this wave that is referred to as contemporary globalization. It is historically unprecedented in terms of its extensity, intensity, velocity and impact. It is characterized by the end of Empires (Colonial) and the emergence during this period of the United States of America as the one truly global power. Contemporary globalization has also involved a massive increase in migrations of populations, the increasing significance and impact of environmental issues and concerns, and developments in mass media and technologies. Contemporary globalization involves the emergence of a growing worldwide elite as well as popular consciousness of global interconnectedness.

So what are the changing skills required by globalization? Tikly et al (2003) quoted Oman (1996) that "Taylorist" forms of industrial enterprise have the capacity to absorb low–skilled labor, even the illiterate. However, economies such as Hong Kong's are increasingly based on flexible rather than "Taylorist" forms of production. He further stresses that flexible production is based on an organizational ability to adapt rapidly to changes in demand. To assist in this, management regimes are flat rather than hierarchical, so that decision-making rather than rule-following becomes a responsibility of all involved in production. Workers are expected to be creative problem solvers, capable of working in teams on a range of tasks demanding multiple skills and, crucially, capable and willing to engage in continuous learning and retraining. The workforce therefore, requires basic skills of literacy and numeracy, as in "Taylorist" forms of production, but also skills in communication, team working, the application of knowledge to problem solving in real-life situations and "trainability" through a capacity for continuous learning. Global competitiveness also demands a new emphasis on the secondary and tertiary education sectors. Besides expansion, the curriculum and teaching methods also seem to need to be more focused on developing generic and attitudinal skills such as critical thinking and problem solving as well as promoting

national reconciliation and life skills. The above describes what changing skills are demanded under the forces of globalization.

But what would the State or Government have to do to engage with the forces of globalization. There would be hardly anything that could be done. Mok (2003) argued that under the prevailing global forces, the nation state is deemed to be vulnerable and incapable of dealing with any crises, in which supra-national action is needed to resolve the problem. In his opinion, putting the ideas of postmodernism and the experiences of globalization in perspective seems to suggest that modern states have a license to do less, and increasingly allow the market to determine the rest. It is particularly true when the forces of globalization induce leaders of individual nation states to put forward social-Darwinist views that only the fittest can survive in the open global competitive environment. He goes on to argue that the state is reduced to the role of the 'night-watchman state' of classical liberalism, hence only taking care of law and order, protecting the sanctity of contract, and maintaining the minimum level of welfare to protect those really poor and vulnerable, while simultaneously, facilitating the free operation of the market.

Levinson (2005) emphasized the development of a new work model in the job market. This model is characterized by a flexible work structure and

streamlined production systems. Under this ideal model, job quality rises and even entry-level jobs offer good wages, autonomy, and skill development because the model relies on human-resource strategies to create high levels of motivation and on mechanisms that channel employee involvement into performance gains. These strategies include participatory management, self-directed teams, job rotation, and more sophisticated employee incentives. Under this model, everyone wins. The firm's success depends on the skill and creativity of its workforce, and in return it provides high wages and job security. The new work model finds its niche in the construction industry here. The needs to streamline work procedure and to produce cost savings are prevalent under the globalization forces. This has prompted the construction industry personnel to concentrate on pursuing a flexible organization structure. The participatory management also demands the employees to possess interpersonal skills in order to solve new problems that may have come up from time to time.

With the advent of the knowledge based economy and the globalization forces, what form of education would be appropriate? Reich (1991) wrote about the education that is needed for the 21st Century globalization and in particular, the need to produce symbolic analysts who solve, identify and broker new problems in order to succeed in the world economy. He argued that most

formal education perpetuates a compartmental fallacy - offering up facts and figures in bite-sized units of "history", "geography", "mathematics", and "biology", as if each were distinct and unrelated to the others. He espouses a new approach, which he argued should aim to discover new opportunities, of seeing the whole, and of understanding the processes by which parts of reality are linked together. In the real world, issues rarely emerge predefined and neatly separable. The symbolic analyst must constantly try to discern larger causes, consequences, and relationships. He further emphasized the idea of system thinking which works like this - rather than teaching students how to solve a problem that is presented to them, they are taught to examine why the problem arises and how it is connected to other problems. These students are thus equipped with a set of tools for finding their own way, for exploring a range of possibilities and outcomes, for noting relevant similarities and differences, for making thoughtful guesses and intuitive leaps. Most importantly, students are taught to accept responsibility for their own continuing learning. In this way, students' general skills including motivation, initiatives and aptitudes will be instilled. This idea of system thinking conforms to the skills that Grubb (1996) and Shaw (1999) saw as being important for the employers and thus, have to be possessed by graduates in the future.

2.1.7 Curriculum Development

My study relates to the key stakeholders' preferences into the type of skills required in an Associate Degree curriculum. Different stakeholders have different preferences on the type of skills needed for the construction-related industry. The existing curriculum contains an array of vocational skills inherited from the previous HD program and their existence will need to be investigated and doubted. Pratt (1980) defines a curriculum to be an organized set of formal education and/or training intentions. He further clarifies that a curriculum is a plan and is only a plan for activities. The curriculum professional is the curriculum designer whose task is to determine the outcomes that will be of greatest value to the students, and then to ensure that these outcomes are brought about under the direction of competent and enthusiastic teachers. He asserts that preliminary organization and planning is needed before deciding on a new curriculum or a modified curriculum. An up-to-date curriculum must meet the needs of the construction-related stakeholders, this is the basic primary principle that a curriculum developer must keep in mind at all times. The degree of student enthusiasm for knowledge, or the loss of choice in alternative study opportunities, does not relieve the curriculum planner of responsibility for ensuring the value to the learner of what is learned.

Chapter 2
Literature Review

2.1.8 Key Stakeholders' Need

How we decide and who gets to decide often determines what we decide. This is very true when we consider the processes of curriculum design. As quoted in Chapter 1, "Your heart's where the money is" often establishes institutional priorities. Grubb and Ryan (1999) found that the type of education preferred in an institution is demand dependent. Education without suitable employment, and, specific training without jobs requiring such skills may be valuable in their own right, but they cannot enhance economic conditions. Therefore I have chosen the demand side to be studied in my dissertation because Associate Degree curriculum is formulated based on the community need for the graduates. In order to list out members on the demand side, I have included the employers, professional bodies, government officials and lecturers to be the stakeholders. This allowed me to better probe the stakeholders' acceptance level to the Associate Degree curriculum design. The following shows an agreement from Marsh (1986).

He stated that Associate Degree programs are formulated based on the advice of departmental advisory committees involving many outside practitioners, who are employers within the relevant industries. The rationale behind the involvement of so many outsiders is to follow the demand and to ensure a sensible policy being implemented and to adopt a clear direction when designing and evaluating curricula in order to meet the stakeholders' preferences. Marsh (1986, p.69) further added that curriculum developers function at four levels, at the national level, at the system level, at the school level and at the classroom level. People at these levels share common perspective and will get to influence the design of curricula. I will investigate these peoples' preferences in the study as a whole. These people would include government officials, the representatives of professional bodies and program leaders. On top of all these people, I will study the views of the employers.

I relied on the professional bodies' view to confirm the views of employers and academics. Hoyle (1995) saw how the profession functions. Among other things, he claimed that a profession requires a considerable degree of skill, and the profession's values tend to centre on clients' interests, and made explicit in a code of ethics. He went on to say that because the professional practice is so specialized, the organized profession should have a strong voice in the shaping

of relevant public policy, a large degree of control over the exercise of professional responsibilities, and a high degree of autonomy in relation to the state. The Associate Degree programs are designed to meet the need of the level of "para-professionals" or "technician" grade of the professional bodies. Professional organizations have a strong voice in social policy and on education direction. Professional bodies in Hong Kong play the role as a channel between academic institutions and employers. Their views can be viewed as neutral when facing major issues about the construction industry, their opinions are often regarded as professional and impartial, and at the same time they act as goal keepers ensuring a good standard of practice in the industry through the education system, as in their system of accreditation of university programs.

Cohen (2003) suggested that curriculum is a selection of what is deemed to be worthwhile knowledge. The question then arises as to who decides what is worthwhile knowledge. He goes on to suggest that the selection has to be justified by the ideologies and power in decision-making in society. There is a strong connection between values and power. This link focuses not only on what knowledge is important but whose knowledge is important in curricula, what and whose interests such knowledge serves, and how the curriculum and pedagogy serves different interests. An alternative study has been carried out

as a strand to my investigation is to check the views of those who have less influence to control on the curriculum, like the graduates from the programs.

Shaw (1999) wrote about what the recent employers need. Schools and colleges are also sensitive to reports that current graduates not only lack the knowledge to fill highly technical jobs, but that students lack the work ethic and knowledge of the workplace that employers seek. These students should be strengthened by tying classroom work more closely with the skills students need to be successful in the workplace, emphasizing workplace values and teaching on-the-job behaviors that employers find desirable. Employers are looking for good workers who are expected to contribute and participate in the decisions made by their organization. Employers' need plays a core role in curriculum design and the following looks at how different authorities see these needs.

Grubb (1996) is concerned with what skills are demanded from the employers. From his study he discovered one particular contradiction which arises time and again. On the one hand, employers value highly job-specific skills, sometimes too specific to be taught in educational institutions and therefore to be learned on the job. They often criticize educational institutions for including too much "theory" and general education, and not enough hands-on

or specific training. Yet employers also complain about the lack of general and "academic" capacities, including the abilities to read, write, and communicate in other ways, and the ability to understand and apply mathematics in unfamiliar settings. Some employers therefore castigate occupational programs for concentrating on specific skills to the detriment of more general or academic capacities. So can the employers make up their mind on what they need from their employees? He put forward a possible explanation for this contradiction: the skills necessary for entry-level employment are much more specific than those required for promotion and positions of increasing responsibility.

Grubb (1996) noticed a phenomenon in the study interviews. Those who stressed specific skills were production-level supervisors, while those who emphasized common sense, problem solving and higher order skills were personnel managers. This contradiction poses a problem for students and educational providers. The skills necessary in the short run may obscure the skills necessary for promotion and mobility in the long run. For a student may be caught in between both worlds: lacking the job skills and without the competencies for promotion. In this regard, employers' perception in the long run has been investigated in this research.

A vast array of topics considering the issue were considered in the above review and all the overwhelming literature detailed has been provided below as a summary to ease the grasp on the literature for the readers and also to act as a basis for providing the study rationale.

2.2 CHAPTER SUMMARY

The literature surveyed and collected in the above represent a list of relevant research which is up-to-date and most appropriate for my investigation. I am now framing up my dissertation skeleton based on the collected theories as follows:

Economic developments and education are closely knitted - it is important for vocational education to align to the economic needs of a nation. Hong Kong has seen herself in her role change from entrepôt to manufacturing and return to entrepôt again. A number of important findings in VET have opened an avenue for a rethink. Technical jobs require not only skills and know-how, it is important to provide students with a work ethic and knowledge of the workplace.

Grubb's (1996) study showed that employers want both the job-specific and basic academic skills. Cohen (2003) further suggested that the selection for the worthwhile knowledge is justified by the ideologies and power in society. The stakeholders can use the situation to exert pressure on the curriculum and they would include the employer, professional bodies, government official and lecturers. When organizing for curriculum development, Pratt (1980) reminds that curriculum developers must be mindful of the needs of the community. Whether an existing curriculum would be modified or maintained will depend on the relevant data obtained based on social research methods. Marsh (1986) divided curriculum developers into four types, at national level, at system level, at school level and at classroom level. These levels match well with the above types of stakeholders.

Tikly et al (2003) predicted that global competitiveness also demands a new emphasis on the secondary and tertiary education sectors which will stress the need for developing generic and attitudinal skills, such as critical thinking and problem solving. These are changing skills demanded under the forces of globalization. In response to these newly demanded skills, Mok (2003) argued that there would be hardly anything that could be done under the global forces. He believes that in a wider sense, modern states have a license to do less, and increasingly allow the market to determine the rest.

Lo (Bray and Koo, 1999) conceded that curriculum reforms are greatly influenced by social forces. Hong Kong needs Associate Degree programs in the next decade (Hong Kong Government, 2000). The Education Commission has placed particular emphasis of these programs in the Community Colleges. The historical development of Hong Kong illustrated the need for either vocational or general educational curriculum throughout the history and the pendulum will swing back when the economic situation changes. A vocational education that is too general will lose employment and will not enhance economic conditions.

Returning from the analysis of the above it would seem that the Government is allowing the pendulum to swing back when deciding on the curriculum for vocational education, depending on economic conditions. New forms of skills are demanded in modern knowledge-based economies. What are needed are not only new skills and crafts but also higher level learning including symbolic analysts. Let these skills be applied to the Associate Degree curriculum to see if this could be accepted by the key stakeholders.

Reich's (1991) emphasis on the symbolic analysts' process has been echoed by Grubb (1996) and Shaw (1999). Reich's symbolic analyst must constantly

try to discern larger causes, consequences, and relationships. He also cherished the idea of system thinking wherein students are taught to examine why the problem arises and how it is connected to other problems. Most importantly, students are taught to accept responsibility for their own continuing learning. In this way, general skills including motivation, initiatives and aptitudes will be instilled in students. This idea of system thinking is echoed by Little's (2003) study. She found from her study that some employers preferred graduates to have developed practical and technical skills, more than purely academic skills.

After reviewing all the above literature, my questions related to Associate Degrees and also about the type of curriculum as to whether they should be vocational or educational have now come into a great shape for me to proceed further. The study has found the need to establish the curricular content of the Associate degree programs and to confirm the preferences of the stakeholders, especially, the employers. It has thus been attempted in the current study to provide a clear understanding of the present situation in the curricula of the construction industry and thus outline the changes needed, if any. Although the construction industry is targeted, the arguments have focused on the current trend and so they would be able to provide a relevant guide for other areas as well.

CHAPTER 3

METHODOLOGY

3.1 Methodology

This Chapter outlines the specifics of the whole research process including the details of the design of the research, information on the instrument used, the procedure of sampling, data collection and data analysis, overall conduction of the research and any ethical issues raised by the present design. The methodology will be stated clearly in this Chapter to ensure that the data gathering process was relevant, valid and reliable. The methodology employed shall also be able to guarantee that the data and information obtained flow from the research aims and research questions.

The key methodology adopted for the study was a linear and progressive method of data exploration. Subsequent study was grounded on previous data obtained. In particular, the study was based on documentation analysis, interviews, telephone interviews and questionnaire surveys. My chosen methodology required these research methods to be arranged longitudinally in

time so that more information could feed into the administration of the next research instrument making the outcome more valid and reliable. I had four main phases in the developmental sequence of study. The first phase included the documentation exposition, namely, Grubb's (1996) findings about the skill types and Labor Department's up-to-date "Ad Slip" on the skills demanded; secondly the interviews with the four program leaders, the in-depth interviews with them will probe the subtle differences and skills requirements amongst their programs; thirdly the questionnaire survey to be conducted with 599 employers, the use of "counting" as suggested by Miles and Huberman (1994) is a tactic for generating meaning to the data collected. The occurrences and preferences are counted in order to "see what you have" in order to show the employers' preference and their perception about the future trend of skills for the AD graduates; and the last phase was the checking of the data by asking for the views of the graduates, "volunteered" employers who wanted to be followed up and the office bearers of professional bodies. Their responses will confirm the data and reinforce the responses from the previous phases.

There are seven sections in this Chapter: a) ethical issues; b) documentation analysis; c) interviews; d) telephone interviews; e) questionnaire survey; f) sampling criteria; and g) data analysis procedure. The Chapter concludes with a summary of the key methodology adopted for the study.

Chapter 3
Methodology

3.1.1 Ethical Issues

The basic ethical issue in the dissertation was to ensure that the work was original except for those quotations and information directly obtained from the special references now in the text. I noted the two ethical issues (Bogdan and Biklen, 1992, p. 49) in research with human subjects: that informed consent should be sought and that the subjects must be protected from harm. In this respect, I ensured that the first subjects, the program leaders are not exposed to risks because they have chosen to participate voluntarily in the semi-structured interview of the research. I needed to display my research aims and the possible outcomes to gain the subjects' trust and credibility. I also wrote specifically in a cover letter to give the program leaders my promise that their given information was to be used for academic purposes. In this way I won their full trust during the interview session.

It is a competitive world in the construction industry. The second subjects were the firms which belong to this competitive industry. The study focussed on the human resource data of the companies and firms in Hong Kong which

had thus, inevitably been touching on their sensitive issues. To preserve the confidentiality of the data and results, the questionnaire survey forms were designed to make most of the private data hidden, unless the firms chose not to. Further it did not contain naming of the organisation as a requirement because the commercial world being competitive, some companies will not want sensitive figures, like number of staff to be disclosed. I generally left the company name hidden to allow the respondents to be more at ease and thus, provided me with greater extent and depth of information about the company profile and their planned future business moves. The checklist of points I designed for interviewing my fellow colleagues included a declaration that the information would be kept confidential for privacy reasons. Throughout the research process, I always kept in my mind the definition of ethics as provided by previous studies (Cavan, 1977; Cohen et al, 2000) which is "a matter of principled sensitivity to the rights of others". Being ethical limits the choices we can make in the pursuit of truth. Ethics say that while truth is good, respect for human dignity is better, even if, in the extreme case, the respect of human nature leaves one ignorant of human nature.

Finally when writing up the dissertation report, Creswell (2003, p. 63) who further quoted Neuman (2000) and advised that the data collected must not

be used to suppress, falsify or invent findings to meet a researcher's or an audience's needs. These fraudulent practices were not accepted in professional research communities, and they constituted scientific misconduct.

3.1.2 Documentation Analysis

The research began following the reading of two important pieces of documentation. The first documentation included was the Program Handbook published for the four programs. This publication had included all basic information for a student to fully comprehend about his or her own academic requirements. In particular, it contained the program curriculum which was useful for this research study. A thorough analysis of these documents allowed me to establish a structural framework for studying the present curriculum structure of the Associate Degree programs. It acted as a starting point for calculating the ratio and balance between the vocational and general education content. The second piece of data source included was the "Survey on Opinions of Employers" described in Chapter 1. This document provided me with a good source of skill classification recognized officially in Hong Kong.

In our institution students were given a Program Handbook at the point of entry. It was a publication that details, among other things, Description and Contents of Program, Curriculum Structure, etc. which were closely related to their study. In this publication there existed information about the aims and objectives of each program, from here I can identify the general skills of each program that each student was supposed to obtain. Also by looking at the detailed syllabus contained in the booklet, the different vocational skills were also described. Starting from here, it was possible to extract a list of vocational skills that each student was expected to acquire. The information gathered during the document exposition became the basis for preparation of a general checklist of points that were raised in the interviews when confronting the key stakeholders, apart from using my experience and knowledge gained through previous teaching in this field.

Miles and Huberman (1994) write about the various analysis tactics, the ways of drawing and verifying conclusions during the collecting process, especially for generating meaning from data. People are meaning-finders; they can very quickly make sense of the most chaotic events. Our equilibrium depends on such skills: we keep the world consistent and predictable by organizing and interpreting it. The critical question is whether the meanings you find in

qualitative data are valid repeatable, and right. Amongst the 13 tactics suggested to generating meanings, these tactics range from descriptive to the explanatory, from the concrete to the more abstract. I have chosen the fifth tactic "counting" as suggested by the authors. There are three good reasons to resort to numbers: to see rapidly what you have in a large batch of data; to verify a hunch or hypothesis; and to keep yourself analytically honest, protecting against bias. Data from the commercial world need to be kept confidential, therefore counting would suit the study.

However, the authors (Miles and Huberman, 1994) suggest that early conclusion typically needs confirmation, checking and verification. Is it really right? The most frequently used tactics we have noted are following up surprises; triangulating; making if-then tests; and checking out rival explanations. Matrix displays are also useful when you are seeking confirmation through feedback from informants. On the problem of how some found data are drawn into conclusions, the authors suggest that the data quality can be assessed through weighting the evidence and deciding which kinds of data are most trustable. Using feedback from informants can also reinforce the findings.

3.1.3 Interviews

Chapter 3
Methodology

The methodology was designed to answer the research questions set out in Chapter 1. Since the direction and track of the next phase was grounded on data obtained from former phases, I conducted a mixture of structured interviews and interactive, open-ended conversations with the program leaders. To create a light atmosphere and also for social reasons, informal chats and discussions were also continued throughout the interviews, as and when required.

I had sent an interview schedule to the four program leaders before meeting them and the interviews were recorded. Being members in a working team for several years, the fact that a colleague was being interviewed by a familiar colleague may bring a sense of uneasiness. In fact one program leader had even chosen not to be audio-recorded. So the way I designed my questions was like this: I chose not to state the obvious, but to select questions which have very specific answers so as to avoid the risk that respondents would repeat the things that I already knew. And the end result in general came out quite well. The data of the interviews will be included in the surveys with the employers later. I discovered that there are questions that even the program leaders could not be definite about the answers. Such collected data will form

very good foundation for questions which I can confirm or clarify later with the employers, like, what were the more important skills, general or vocational?

In view of the nature of AD program types I decided to make use of the technique semi-structured interviews to probe with the program leaders. Qualitative methods with a check list of points prepared before the interview allowed me to attract discussion, attitude and opinions. The program leaders were the frontline administrators who determine what topics and subjects were to be delivered during lectures in the curriculum. The procedure employed for interviewing included the following: The four program leaders were interviewed based on an identical interview schedule. I had sent them an interview schedule consisting of a covering email attached with eight open-ended questions. They included:

- *What were the skills and knowledge that you had previously learned as a student;*
- *Have the skills and knowledge been useful to the career?*
- *Have you also incorporated these useful skills and knowledge into the current curriculum?*
- *Have you added any new skills and knowledge?*
- *What are to be added further to the present AD program curriculum?*

The interview and probe were expected to last for half an hour. After exposing some key issues during the interviews, the results obtained were analyzed using the grounded theory approach and the themes formulated were used to guide the design of a questionnaire for the quantitative survey mailed to the 599 construction-related employers.

3.1.4 Telephone Interviews

Semi-structured telephone interviewing was conducted to reach the office-bearers of professional bodies who were also key stakeholders and had important preferences and influences about the curriculum of Associate Degree programs. In lieu of the standard form of interviews to be conducted for program leaders, I intended to use the more efficient method of data collection for the following reasons.

3.1.4.1 Time Factor

Office-bearers must be sufficiently senior before comprehensive answers can be obtained. Educating para-professionals only formed part of the business of

the professional institutions, and so an efficient utilization of the time must be of paramount importance to ensue time economy. The time available had to be short. If necessary, the interviews, the prompts and the probes can be stopped and continued in other sessions.

3.1.4.2 All Four Institutions Available

No sampling was required. All professional bodies in the construction-related industry represented different areas of knowledge and became the population of the survey.

3.1.4.3 Standard Format

In addition to the usual advantages of the standard form of interview like the prior list of interview schedules or the pre-thought-out prompts and probes, the telephone communication also allowed time for the interviewers and interviewees to carefully consider these questions and the probes.

The interview schedule had been emailed to the office-bearers before the interview appointment was made and it included the following questions (example from HKIS, see the Appendix for the complete list):

How do you classify the construction industry and the profession? - old, established or risky technology? Is it a common practice for the HKIS to vet the Associate Degree curriculum before recognizing it? Would the HKIS prefer to see the Associate Degree curriculum to run vocational or general education? From my previous survey, employers consider that vocational skills and general skills are equally important, does the HKIS agree with this result? From my previous survey, employers were asked to predict what skills are more important in four years' time. The result is surprising: employers are of the view that: vocational skills will gradually become less important in 4 years' time; but, general skills will gradually become more important in 4 years' time. Can you explain why there is such a view from the employers? Can you spare some time for me to have an interview with you, with sound recorded?

3.1.5 Questionnaire Survey

The population that I used for my group of key stakeholders had come from a list of employers who had once taken some of the past graduates from our programs as their employees. Furthermore, the questions I had included in the questionnaire survey were the results of a longitudinal and progressive

development. Some of them were obtained from documentation exposition and some from the semi-structured interview result.

The survey was based on questionnaires. Since the questionnaire had been custom-made to solicit the views of a large population, the validity and reliability of the perceived results became an important factor during the form design. I sent out 599 survey forms to the construction-related employers. The obtained results were intended to allow me to establish the employer preferences on the general and vocational education in the AD curriculum. The questionnaire was divided into two parts: a covering letter summarily describing the study and its purpose, clearly stating the intention of my request. The letter included the key research question to be addressed by the study plus the return details when it was completed; the second part included 8 main questions and 40 sub-questions. The followings are the detailed contents to Parts A to D respectively:

Part A of the survey form was aimed at obtaining the basic facts about the respondent, the number of AD graduates employed, the company profile and the business types.

Part B solicited the Employer's view about the AD skills, both general and vocational. The vocational skills category was obtained from the curriculum and hand book of the programs in the documentation exposition. The general skills category was obtained by combining the skills sought by the employers as indicated in previous research (Grubb, 1996; EMB, 1998; Levinson, 2005).

Part C invited the Employers to postulate on the future AD skills. It asked if there will be a change in the type of vocational and general skills. The employers were asked to opine on the type of vocational and general skills that will be popular in a few years' time from now. The answers were collected using a five point Likert-type scale: Very Often, Often, A Little, Very Little, and Not At All. There is one question (others) with blanks allowing non- standard skills envisaged.

Part D requested the employers to elaborate on the forces changing the AD skills and allowed half a blank page for writing. The questionnaire ended with a request for an interview to be granted soliciting for name, address and phone number in case any further clarifications were needed by the surveyor.

Many steps were taken to ensure a higher response rate. The questionnaires were sent out by land mail to the designated 599 companies. Every survey

posted also consisted of a pre-stamped and self-addressed envelope. As there were over 40 questions in the survey form, it was advisable that the number of pages be reduced to the bare minimum by printing the pages on both sides of the sheet, fortunately all but one came back via the returned envelope, with the single one via the fax machine. Most addressees were company or firm names, but whenever I came across familiar firms, I would usually write a friend's name or some other people's name of relation to attract the attention. It was hoped that this would ensure that the questionnaires are attended to and not thrown straightaway into the recycle bins! Finally after a lapse of 27 man-hours hard work, I was actually able to see the questionnaire letters packed and dispatched in bulk through the Hong Kong Post Office.

3.1.6 Sampling Criteria

As described in Chapter 1, the opinions of a wide range of key stakeholders were sought regarding the skills that they felt were a priority need and how they would balance between the graduates' vocational and general skills. The

stakeholders in my target included the government, the employers, the professional bodies and lecturers.

The size of the population being small, there were no sampling problems in relation to most of the key stakeholders except for the employers group, which did attain quite a big size. I had chosen to study the construction related organizations only, but according to the student graduation statistics, the employers of the AD graduates in this field could include anything from a merchandiser or a small builder company to a government department. Therefore I had to be selective when choosing which type of employers' opinions to take. Fortunately, due to our relatively long history of vocational education establishment, our connection with the construction industry had been quite close. In the past ten to fifteen years, a list of company names had been retained which had a record of sponsoring our activities. They had shown interest in providing summer intern places, provided financial sponsorship to final year project winners and taken part in executive mentoring scheme. I decided that these companies should have sufficient interest to respond to my call for filling a survey. Therefore I dared myself to write to the companies and attached one moderate-sized questionnaire for their action.

Chapter 3
Methodology

The construction industry was multi-layered and one that consisted of financing, design, engineering, contracting, manufacturing and management companies and firms. In the past, graduates from the Higher Diploma Programs had found jobs in different sectors of the industry and my present list consisted of companies from a full spectrum. At the time of data collection, I had obtained 599 companies and organizations for this purpose and so, I treated them as the sample of employers in this study. A sample of this size was big but it was apparently right for us to see the full picture of the employers' preference. I did consider companies from outside Hong Kong. The construction industries on the Chinese mainland used to employ many qualified professionals from Hong Kong. The employers there, however, had shown little interest in recruiting fresh graduates from the Universities, let alone Associate Degree graduates. Therefore, the study did not include firms and companies from locations other than from the Hong Kong Special Administrative Region.

As previously detailed (see Chapter 1), Grubb (1999, p.329) identified three categories of Vocational Education and Training (VET) sponsors: employer, individual and government. I sent e-mails to the government's EMB to request for an interview in a bid to obtain the official line for the type of Associate Degree curriculum most appropriate for Hong Kong. Initially they provided

me information about a survey they had conducted previously in connection with the Degree Graduates completing their courses from local universities. In the survey report, their findings about employers' preferences on the type of skills and attitudes were summarized. The information obtained was useful as a good reflection on the Government's view on the issue. I did not interview the EMB following this, but I did include the government department as an employer in the survey.

The program curricula were developed by the four program leaders based on the key stakeholders' preference at the time of their preparing the curricula. Marsh (1986) distinguished curriculum developers into four categories as previously described and the school level one should be represented by the four program leaders in the university. They were in fact representing a team of experienced staff who got years of administrative and professional experience in the related professions, and therefore, all four were included in the interview phase of the study. There are three major professional bodies in connection with the programs. They included the Hong Kong Institute of Architects, Hong Kong Institution of Engineers and Hong Kong Institute of Surveyors. The two engineering programs had been accredited by the same professional body, i.e., the Hong Kong Institution of Engineers. I completed four interviews from these three institutions.

3.1.7 Data Analysis Procedure

Data flow was from two instruments. They were the summary of the interview scripts and the quantitative and the qualitative data obtained from various items on the returned survey forms.

3.1.7.1 Survey Data

Questionnaire data were processed to ensure that no major errors were made by the respondents. There were three major tasks in editing as pointed out by Moser and Kalton in Cohen et al (2000): for accuracy making sure that there is an answer to every question; for accuracy by checking that all questions are answered accurately; for uniformity by ensuring that all outgoing interviewers have interpret instructions and questions uniformly (but this is not the case using the survey forms).

My survey form had a number of questions and their corresponding smaller parts, for example, questions 7a, 7b, …., 7i. Since the design of the questionnaires had been premised on the research questions, when the

returned data were counted under each question, the results will naturally follow and were helpful to answer these research questions.

The main approach of quantitative data analysis was carried out numerically through the use of a statistical and graphical analysis in Microsoft Excel. Descriptive statistics based on data were compared to the percentage figures, their means, frequencies, histogram representations and by rankings. As the population in this survey was big, it was easier to do the analysis using Excel graphics in order to see the whole picture. Responses to the questions on the Likert Scale can be tabulated and their cumulative frequency curve can be drawn from these data. It allowed me to see its graphical representation and helped to interpret the result of the study instantly. A mixture of both the quantitative and qualitative methods with follow up interviews was decided to be the main approach to further probe into the raw data.

3.1.7.2 Interview Data

Data extracted from interviews will require analysing. Miles and Huberman were quoted in Cohen et al (2000) that there were twelve tactics for generating meaning from transcribed and interview data: counting

frequencies of occurrence; noting patterns of and themes; seeing plausibility; clustering; making metaphors; splitting variables to elaborate and unpack ideas; subsuming particulars into the general; factoring; identifying relations between variables; finding intervening variables; building a logical chain of evidence and making theoretical coherence.

In analysing the interview data, I had to be mindful of the five research questions waiting for me to provide answers. The structured interviews with the program leaders had provided preferences and the rationales for their choices. I intended to make follow up questions to catch the real meanings. This helped in gaining clarification to ask smaller parts of the large questions and then piece together the responses. Throughout the interview I was particularly mindful of the personal opinion questions about other key stakeholders which could result in the covering up of bias. At the writing up stage I hoped to use the personal information to help in grouping the responses about different key stakeholders. All interviews were tape recorded after obtaining consent from the interviewees. All interview sound tapes were translated from Cantonese into English and then into scripts for writing up the research report.

3.1.7.3 Document Data

Document exposition in other forms of educational research was regarded by Travers (Cohen et al, 2000) as a preparatory stage to gathering data and serves to acquaint researchers with previous research on the topics they were studying.

The document data would enable the researchers to continue in a tradition, to place their work in context, and to learn from earlier endeavours. Pratt (1980) sees that relevant data can be readily collected from the newspaper, scientific journals, official government publications, yearbooks, news photographs, legislative debates, and broadcasts. Many design problems may have already been solved; excellent materials may be cheaply available; new and effective teaching techniques may have been developed; entire curriculum of proven effectiveness may be available off the shelf. He further advises that even an inferior curriculum may suggest pitfalls to avoid or components to improve. Curriculum designers must try to avoid either developing redundant or obsolete curricula, or engaging in so much reading, travel, and consultation that they have little time for original thought. This last observation serves to emphasize the need for striking a balance between keeping a vocation-skill-oriented HD curriculum to a general-skill-oriented AD curriculum. As

instigated by Pratt above, by following closely with the EMB employers' survey result in Chapter 1 and the Labour Department's Ad Slip on the skills demanded (discussed further in Section 4.1.2), I would be able to discover the official line of this key stakeholder.

3.2 CHAPTER SUMMARY

The research aims and research questions stayed as a backbone and skeleton; the documentation analysis initially took the front line to set up the basis of the study; sampling criteria decided the type of data to be studied; interviewing collected the personal and in depth details; questionnaire helped to collect data from a large population; data were supported to confirm the validity and reliability; data were then analyzed and abstracted to answer the research questions. The ethical issues were considered (and suitably managed) for each step throughout the research process, thus helping to maintain a moral standard and conduct while arriving at a final result.

CHAPTER 4

FINDINGS

4.1 FINDINGS

This study identifies the key stakeholders' preferences concerning the skills content of the curriculum of the Associate Degree in Hong Kong. The study has been based on the present condition of the construction industry in Hong Kong for which the Associate Degree programs aim to supply graduates. This Chapter will report the findings of the study and will be divided into the following sections: a) key findings from the documentary analysis; b) the skills demanded by construction-related employers in general; c) experience and preference of the program leaders; d) attributes of the AD-related employers; e) AD-related employers' preferred skills; f) support of the previous results; and g) preferences of the professional bodies. The Chapter concludes with a summary of key findings.

4.1.1 Key Findings From the Documentary Analysis

Chapter 4
Findings

The Associate Degree programs under study are 2-year full time programs which include four construction-related programs and admit students with one A- Level pass. The programs are respectively entitled the Associate of Science in Architectural Studies, Building Services Engineering, Construction Engineering & Management and Surveying. They are four independent programs administered by four different program leaders and their respective committees in one department. The programs are internally accredited and also externally recognized by professional bodies. The following is a comparison of their vocational and general education credit numbers:

Figure 1 - **Associate Degree Programs Under Study for the Year 2004-2005**

Associate of Science Program Title	**Architectural Studies**	**Building Services Engineering**	**Construction Engineering & Management**	**Surveying**
Vocational Education Credits (Note 1)	50 (74%)	50 (74%)	50 (74%)	50 (74%)
General Education Credits (Note 2)	18 (26%)	18 (26%)	18 (26%)	18 (26%)
Hong Kong Professional Recognition	**Institute of Architects**	**Institution of Engineers**	**Institution of Engineers**	**Institute of Surveyors**
Target Level of Membership	**Affiliated#**	**Associate**	**Associate**	**Technical**
No. of Graduates	48*	48*	48*	128*

*** Extracted figure from the 2002-2003 Student Development Services Report**

 # Pending approval by the Institute

Notes (1 & 2):

1. **Vocational Education Credits are for those courses which bear names of construction-related subjects or similar**
2. **General Education Credits are for those courses which include Chinese Civilization and Cultures, those from the English Language Centre, those Out-of-Discipline courses which belong to other departments**

The present AD programs are remnants of the past higher diploma programs which were vocational both by name and by nature. The higher concentration on vocational skills is a result of this heritage. In fact, at 26% the size of the general education component is already a significant increase, especially in view of the shorter program duration, than that of the old vocational programs.

The 26% general education component tabulated above was a decade-long result of the top-down policy decided by the Senate of the Institution. It included compulsory course taught by the Centre of the Chinese Civilization and Culture and that of the English Language Centre. These courses are supplemental to but are added to the vocational courses inherited from the previous HD programs. Furthermore, there are general skills that are expected to be learned by students but these are built into the vocational courses as disclosed below by Program Leaders during the interviews. All the general and vocational courses have to go through a long-winded process of decision making beginning from an individual course formulation, a program committee deliberation, work group on academic affairs approval, college board endorsement and all the way up to the Senate and ultimately eventuate in the AD curriculum document.

The rampant growth of community colleges has brought the need for an official line to guide the running of AD programs in Hong Kong. The following is the exposition on how the EMB and hence the Hong Kong Government sees the AD curriculum. The EMB (web, 2004) has promulgated a new set of objectives and learning outcomes which curriculum writers in

community colleges might use to assist with the design. The program objectives are:

> *AD should provide an enriched education at post-secondary level that prepares students for work, further study, leisure and active citizenship. It should also cultivate a spirit of lifelong learning and develop the student's ability to learn how to learn. Specifically, AD should equip students with generic skills as well as specialized knowledge/skills that are sufficient to enable them to perform effectively at para-professional level, to further their studies in universities or to pursue professional studies.*

The above is the first time that objectives for the AD curriculum have ever been published. They demand both generic and specialized skills. It has designated a level of "para-professional" which is a novel term in Hong Kong and is not yet recognized by many professional bodies.

Learning outcomes are also very clearly defined which require most of the general skills espoused by the authorities in Chapter 2 to be obtained. The EMB curriculum instills on all graduates a very comprehensive list of generic skills:

> *A solid foundation of generic skills, including languages, IT, interpersonal, communication, quantitative and analytical skills, as well as the ability to learn how to learn; a broad theoretical understanding of the chosen discipline and its application; a theoretical foundation upon which further study in the discipline at the degree level, or professional level, can be built; an appreciation and basic understanding of other disciplines/areas of study including liberal arts/general*

> *education, and the sciences; a better understanding of their own interests, inclinations and aptitudes; an appreciation of the major socio-political, cultural and economic issues in the local, national, regional and international contexts; a strong sense of social responsibility and civic values, a passion in pursuing creativity and innovativeness, and the spirit of lifelong learning.*

The EMB (web, 2004) homepage has implicitly stated that some Associate Degree programs are called vocational-oriented programs. For example, it states that Associate Degree programs should provide:

> *focused, vocational knowledge of the discipline and hands-on expertise at the para-professional level.*

From this short statement of requirement, apparently the Government would like to see some Associate Degrees as being vocational whilst others might be non-vocational. So there is not yet any sophisticated constraints promulgated by the EMB in running the construction-related programs and not yet a consistent view of how the curriculum should be defined.

4.1.2 The Skills Demanded by Construction-related Employers in General

In the literature survey I have noted that a management structure in a globalized economy will be flat rather than hierarchical, under this structure, workers are expected to possess multi-skills. Since Hong Kong is a

metropolitan city, it could be argued that these skills demanded by Hong Kong employers are on par with these basic requirements.

A recent visit to the Hong Kong Government's Labor Department revealed a similar list of skills that Hong Kong Employers want. Job seeking procedures in the Labor Department are fully computerized and user friendly. There is a job seeking computer terminal which can print an advertisement summary every time a particular job vacancy is touched on the screen. The printed summary contains the major information and the job seekers may proceed directly according to the printed data. I have pressed to print out several related summaries. From the layout in the advertisement summary, it is possible to deduce that these required skills play a major role within the hiring specification. The number of related jobs amounted to less than twenty on the date I visited the Labor Department, so the number of Ad Slips were not too burdensome to collect. I have summarized the job requirements of the employers as consisting of the following four skill categories: computer literacy, language (English and Chinese) skills: interpersonal skills, intrapersonal skills and other vocational skills, such as the possession of a site safety green card.

Computer Literacy Skills

Employers in Hong Kong demand that their employees have fundamental computer skills including: Auto CAD software skill; knowing Spreadsheets; proficiency in 3D Studio; programming skills; web operation knowledge; Chinese word processing; familiarity with Flash; familiarity with Front Page; computer skills in 3D Max; capability of using Pro/E; and IT literacy.

Language Skills

Employers in Hong Kong demand that their employees have good command of English; good command of Mandarin; knowing simplified Chinese; and have International English Language Testing System (IELTS) 7.0.

Interpersonal Skills

Employers in Hong Kong demand that their employees have basic report writing skills; good communication skills; presentation skills; good interpersonal skills & manner; and attitude to be a good teamwork player.

Intrapersonal Skills

Employers in Hong Kong demand that their employees shall be willing to work overtime; self-motivated; client motivated; ready to work outdoor; planning to develop a career; cheerful and energetic; hardworking and aggressive; taking initiative and enjoy outdoor work; independent and responsible; outgoing personality and proactive; hardworking; and willing to learn.

Other Vocational Skills

Employers in Hong Kong demand that their employees have the skills of drafting drawings; electrical knowledge; Electrician License A; experience in hospital maintenance; Site Safety Green Card; valid driving license; application for interim payment; taking off; tendering; knowledge of interior design; solid skill on mechanical drawing; knowledge of inkjet & laser printing; and strong design aesthetics for layout.

The above long list contains more general than vocational skills as required by employers in the construction-related industry. The fact that the skills list is skewed towards the general ones does not mean that general skills are the only ones wanted by the Employers. The employment industry has matured to such a stage that it favors only candidates who satisfy the job title's bare minimum

job-specific skills. The general skills represent added caliber to the candidate's entry level capability. Besides, some of my past students have informed me that employers will select candidates based on interview performance which will normally take more than one meeting, which are called second-ins. In these meetings, these general skills will place an even greater premium on possessing them that might become apparent during interviews. This is a common practice in an economy when unemployment rate is high.

4.1.3 Experience and Preference of the Program Leaders

As pointed out in Chapter 3 the program leaders have been informed about my intention and the possible outcome for doing an interview. I have requested the interview to be tape-recorded.

The questions I have raised included: *As a student many years ago at your previous institution, can you recall what kind of skills and knowledge you have learned? Looking back do you consider those skills and knowledge useful to*

your career that you later pursued? For those skills and knowledge that you consider useful, have you incorporated them into the curriculum that you have designed for your associate degree students? Into the present curriculum, have you added any skills and knowledge that you have never learned before in your previous study many years ago? What are they? Now if you are to revise the curriculum, what do you consider are the most needed skills and knowledge in order to improve in the present Associate Degree program? The interviews I designed were to encourage reasonably open-ended discussion about the curriculum issues, but not specifically about the academic's role as a program leader.

The interview manuscripts are appended to the end of this dissertation as an important piece of evidence for my study.

During the interviews Program Leaders all agreed that their programs are vocational in content. One interviewee stated that: *It has always been vocational. Because of the professional institute's requirement, the graduates must be trained with the knowledge sufficient to carry out professional practice.* However, all of them also considered general skills very important for the graduates. Notwithstanding this, they did not want to change the low percentage of general skills in the curriculum. In reply to whether general

education skills are to go in the curriculum or not, one of the respondents remarked that *if possible, I would prefer to have none. For example, the present course in Chinese Civilization and Culture is of no use to our students.*

An extension of the above phenomenon, was the view that although certain important skills might not have appeared in the curriculum, the students could nevertheless learn them. For example, the absence of a course in information technology in the curriculum will sometimes produce excellent graduates in the application of computer knowledge to the study. This has been confirmed by my informant. It is stated: *When a society has a need, the students will learn the skills to meet these needs. For example, a course about information technology has been deleted due to curriculum change years ago. The students' computer skill in the use of Excel, AutoCad and PowerPoint has not dropped, but on the contrary has been highly praised from the feedback of our external examiners and external judges. So whenever the need is there, given that sufficient resources are made available, students can always achieve the kind of skills society wants.* It is important that teachers give sufficient guidance to them and make the resources fully accessible to the students.

One of the questions I raised with a number of respondents related to "what would employers prefer you teach the students, vocational or general skills?"

I found most of the answers to be surprisingly distinct. One interviewee speaks that *employers will always find General Education (GE) not enough, but program managers like us will find the percentage (26%) too much. Most employers focused on the technical capabilities. When they find the graduates' technical skills sufficient, they will want them to have GE capabilities, and when they find GE sufficient, they will want them to have more technical, this will never end nor be enough.* Another program leader made the similar point that *this is not black and white. Of course given that the vocational skills aren't too bad, some employers would prefer some graduates with a 60% vocational but with an 80% work attitude. Because with a good attitude, the graduate will have a desire to learn, soon he or she will improve the 60% vocational skills to top it up.*

The interviewees are very proud of the students' knowledge in presentation skills which they have not included in the curriculum. However, on being asked why these apparently important skills do not go into the curriculum, the interviewee avers that it is the responsibility of the students to learn it and do it well as a basic requirement. He remarks: *Not putting down in curriculum does not mean they are not important, in fact, in very many occasions the importance for general skills have been stressed in program committees, in tutorials, etc. For example, in my course I am responsible to teach, every*

student has to prepare for all presentations, and then they have to be selected by ballots. In this way, students are trained to improve their presentation skills. This also forces them to be very attentive and interactive, rather than just sitting and watching.

By imposing a higher expectation on these students, students can proceed to a higher level of knowledge. For example, again in the areas of presentation skills, 2-Dimensional photos are less attractive than 3-Dimensional animations but are certainly easier to produce. Higher expectations on the part of tutors can often push students to be a self-directed learner. The Program Leader further remarks on this point: *We have computer animation. Nowadays, presentation using "power point" no longer suffices. Still photos in presentation are not good enough. We need our students to lead the trend. In the curriculum, there are loose courses like industrial training, and integrative projects, students are required to learn these new skills and apply them whenever they have opportunities. The BuiltExpo[11] Panel Judges have praised the very high standard of the computer animation presentation. Besides presentation, students are required to learn Auto Cad for preparing drawings.*

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11 The students' final year projects become an annual inter-year competition and public exhibition called the BuiltExpo.

It will be recalled that I have showed to the AD program leaders a list of skills based on the Labor Department's Ad Slip, etc. One of the informants had the view that in a University setting, it is impossible to provide these skills. These skills cannot be AD curriculum-trained, nor can they be easily obtained from the University setting. The informant observes: *for team work skills, it is impracticable to build in such skills in our curriculum. We will not design one course to train teamwork. We have such training in the projects. In a University setting it is impossible to train company skills. Team work cannot be trained in the curriculum, students cannot learn by reading text books. Students can only learn this in design projects but it is only a short term experience. It needs at least three months to learn. In a company environment, it is possible to learn language skills, teamwork skills and presentation skills. It may not be possible to learn all these in the University setting.*

However, the general skills can be learned through a number of avenues apart from learning them through AD curriculum teaching. For example, the skill acquisition can be via companies and firms. One of the respondents replies by strongly advocating the partnership arrangement with outside companies: *industrial attachment with outside companies. A training program to provide students with teamwork training will be useful.*

On the question of whether students have actually learned the general skills or not, one program leader proposed the use of problem-based learning (PBL) to assess these skills, but even then, the results may not be readily available and that there are no explicit credit units assigned to them. For example, students show excellent skills in the use of "PowerPoint" presentation despite not being officially taught these, however, no program leaders I interviewed mentioned how these skills can be assessed and graded. Perhaps there is really no answer to this so long as the skills are not formally included in the curriculum until PBL becomes a more established form of assessment. The PBL proponent avers that: *we won't know this yet. This has to be done in the long run. For knowledge we know we are successful. For example, students who have not been taught about building structure finally know it, so from this perspective this is a success. For simple transferable skills like communication, computer skills, problem solving skills, it is obvious that students have been successful. But for those interpersonal skills, team building, etc. the result is not so successful yet. We need to wait for a few years before we know the efficacy of this prescribed method of problem-based learning.*

The AD curriculum has a high 74% vocational content. On the question of how to handle this lack of general skills in the curriculum, the respondent Program Leaders suggest the teaching of these skills in extra-curricular

activities like the annual student retreat, the student mentoring scheme and the workshop series organized by the Student Development Services. Basically they acknowledge the importance of the general education skills but given the constraints in resources, it is not possible to make these skills part of the curriculum. According to March (1986, p.69), there is a disagreement amongst curriculum writers about whether curriculum should be restricted in meaning to the ends only, or whether it should include means and thus become an "end-and-means" proposition. Program Leaders tend to use the former approach by leaving general skills as meaning to an end, and by expecting the students to self-direct themselves under the guidance of encouragement of the academics.

4.1.4 Attributes of the AD-related Employers

Survey research by means of mail normally has a return rate of about 10 to 15%. It is a common view that the construction industry in Hong Kong is conservative and is particularly reticent in responding to surveys. This research has been supported by 60 replies (of these one is empty) out of a total

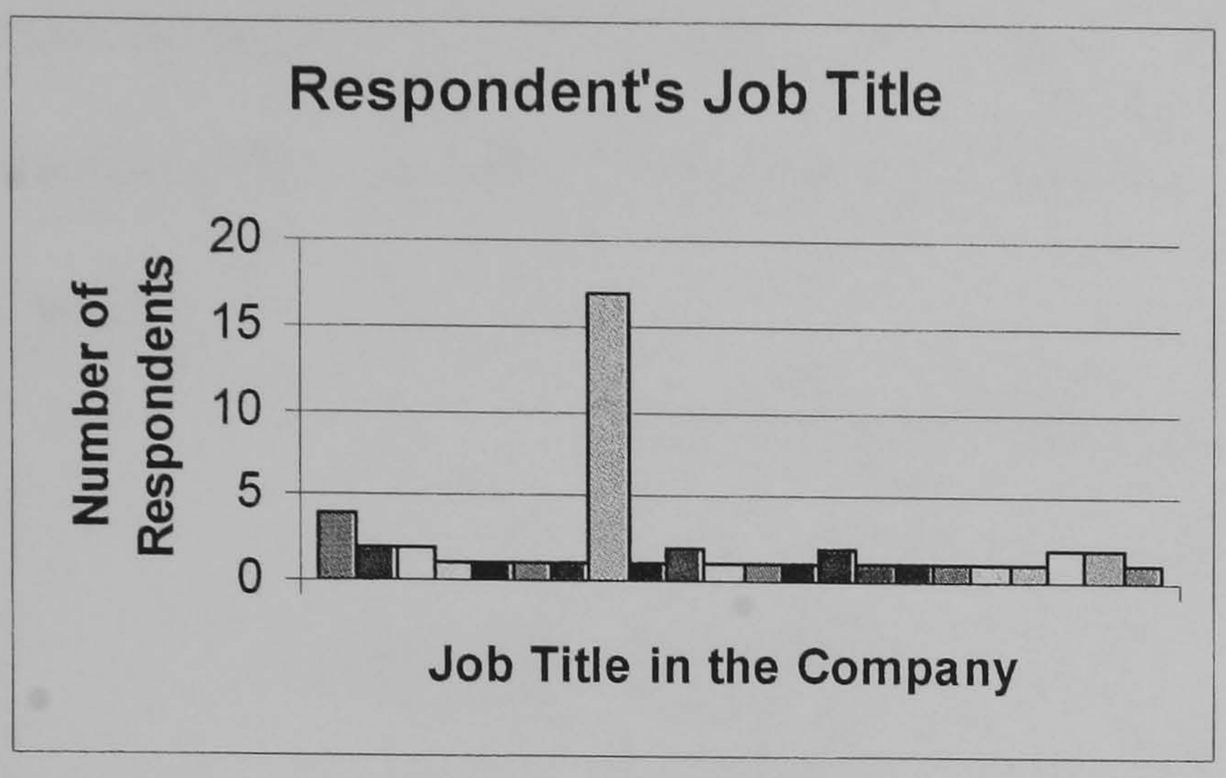
of 599 companies and firms which is a 10% return rate. Therefore my survey result has reached the average minimum.

The following are summaries of data collected from the questionnaire surveys.

In Part A of the Survey I have asked my respondents to fill in their job titles. The results are interesting when compared to the general literature. As pointed out in Chapter 2, for example, Grubb (1996) reports that those staff who stressed specific skills are production-level supervisors, while those who emphasized common sense, problem solving and higher order skills are personnel managers. The job title ranges from Managing Director, Contract Manager, General Manager, Assistant Quantity Surveyor, Senior Assistant Quantity Surveyor, Senior Architect, Architect, Executive Secretary, Director, Chief Engineer, Project Manager, Project Director, Construction Manager, Assistant General Manager, Administrative Manager, Administrative Assistant, Research Manager, Officer (HR), HR Manager, Personnel Services Manager, Consultant Land Surveyor, Training & Development Manager and Associate.

The overall result I gathered about the job titles is shown graphically as follows, the tallest histogram being that of the Director:

Figure 2

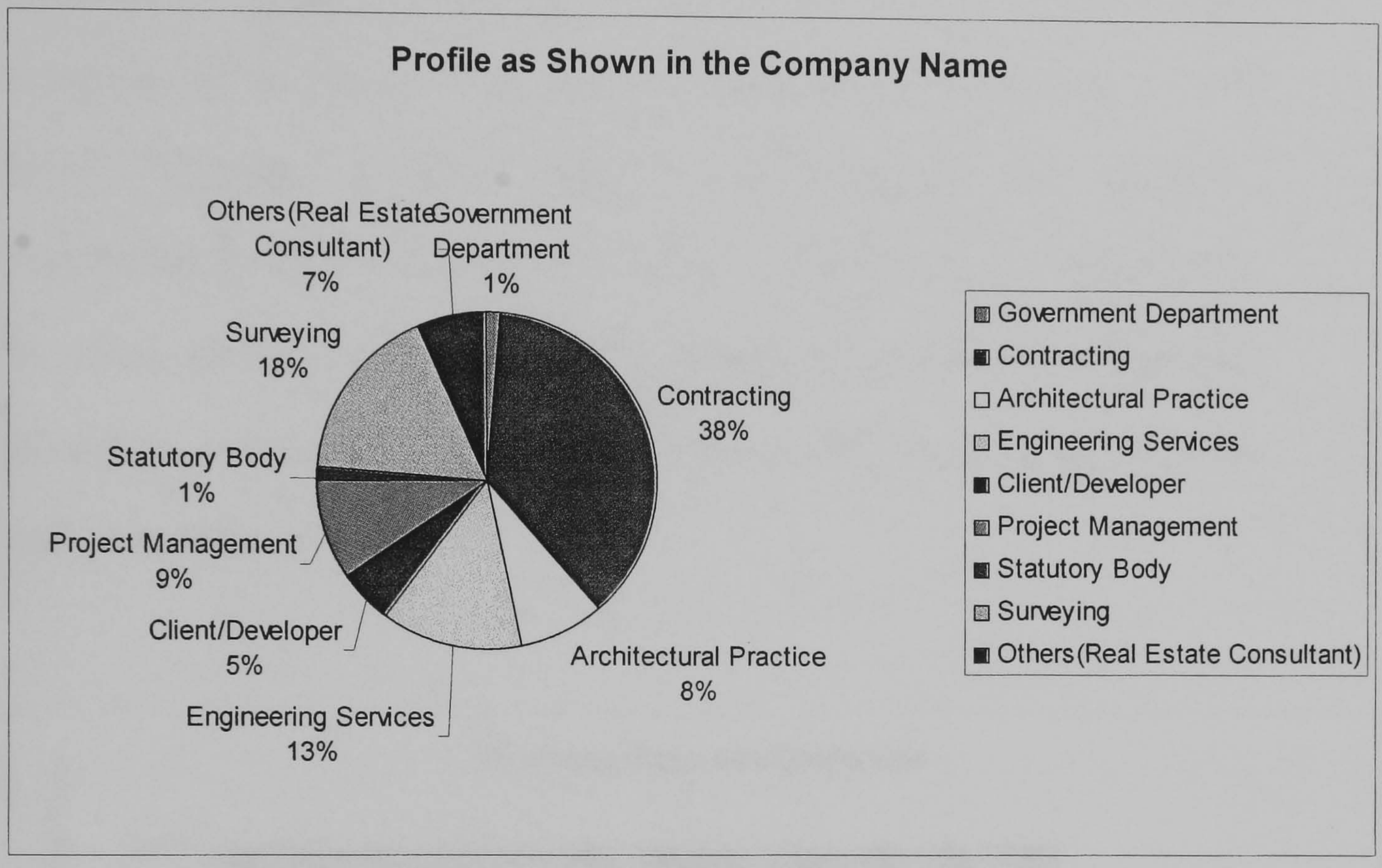


As the job titles show, the respondents are mostly in management positions. There are more company bosses than supervisors. According to the observation by Grubb, management personnel tend to favour general skills, like problem solving and leadership skills. However, the answer to Question 4, "Which is the more important Associate Degree skills?" shows that the majority opts for the "Equally important". It shows a distinctly different result from those of Grubb's observation but has a very close affinity to the EMB program objectives which demand both generic and specialized skills, as discussed in the earlier part of this Chapter.

As explained in Chapter 3, a sample of 599 companies and firms are selected for the study. The organizations are inclusive of the types of work division and types of firms the graduates have been admitted after leaving schools. Of these, 60 firms (of these one is empty) responded representing a 10% return. The

returned surveys were collected via two channels, the fax machine and through the post office using the self-addressed envelope.

Figure 3



The profile indicates that at 38%, the largest category of firms to have responded is Contracting organizations. The rest of the respondents ranges from the Government Department, Client/Developer, Architectural, Engineering to Surveying Practices, and so on. This represents a good cross-section of different stakeholders in the Construction Industry and includes the client, design, management and builder sectors. For this I would say it represents a very good spread of work specialization.

The business has also been studied. The companies are Architectural Design, Project Management, Interior Design, Building Surveying, Estate Surveying, Quantity Surveying, Products Marketing, Building Services Engineering, Structural Engineering, Facilities Management, Property Management, Others (Land Surveying, Building Contractor, Construction, Gas Business, Transportation, E&M, Agency Investment, Civil Engineering, Engineering Surveying, Architectural Consultancy, Construction/Maintenance). I have also asked them to state the possible trend their businesses may be moved into, the result is as follows:

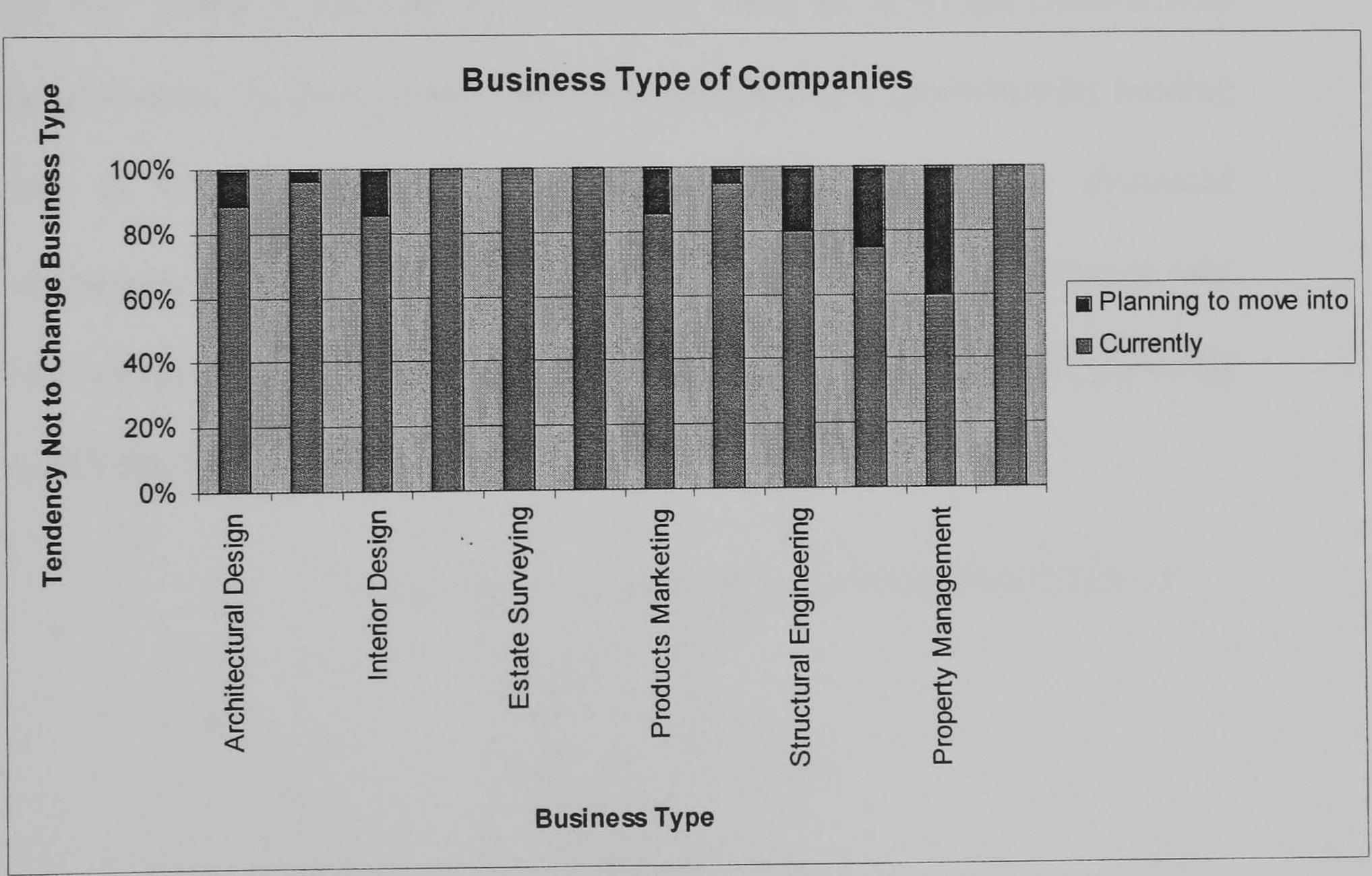


Figure 4

4.1.5 AD-Related Employers' Preferred Skills

I have done a comprehensive survey amongst all the potential employers who have past connections with our students and graduates. I asked them for their views about the vocational and general skills required from our Associate Degree graduates.

Vocational Skills

The BST (2004) Guide contains information about the skills and know-how of the graduates. In the past the Guide has been used for promotion by sending them to the employers during the job-seeking period. I have abstracted information from this publication and arrange them in a question form to take their views again. First I have asked the following questions regarding vocational skills, I have stated:

2. During your business operation, how often are the staff's vocational skills used?
a. Command of Auto CAD
b. Reading drawings
c. Reading manuals
d. Using codes of practice
e. Selecting building materials
f. Designing sizes of cables or pipes
g. Designing details
h. Writing valuation reports
i. Writing specification clauses
j. Taking off
*k. Others*_____

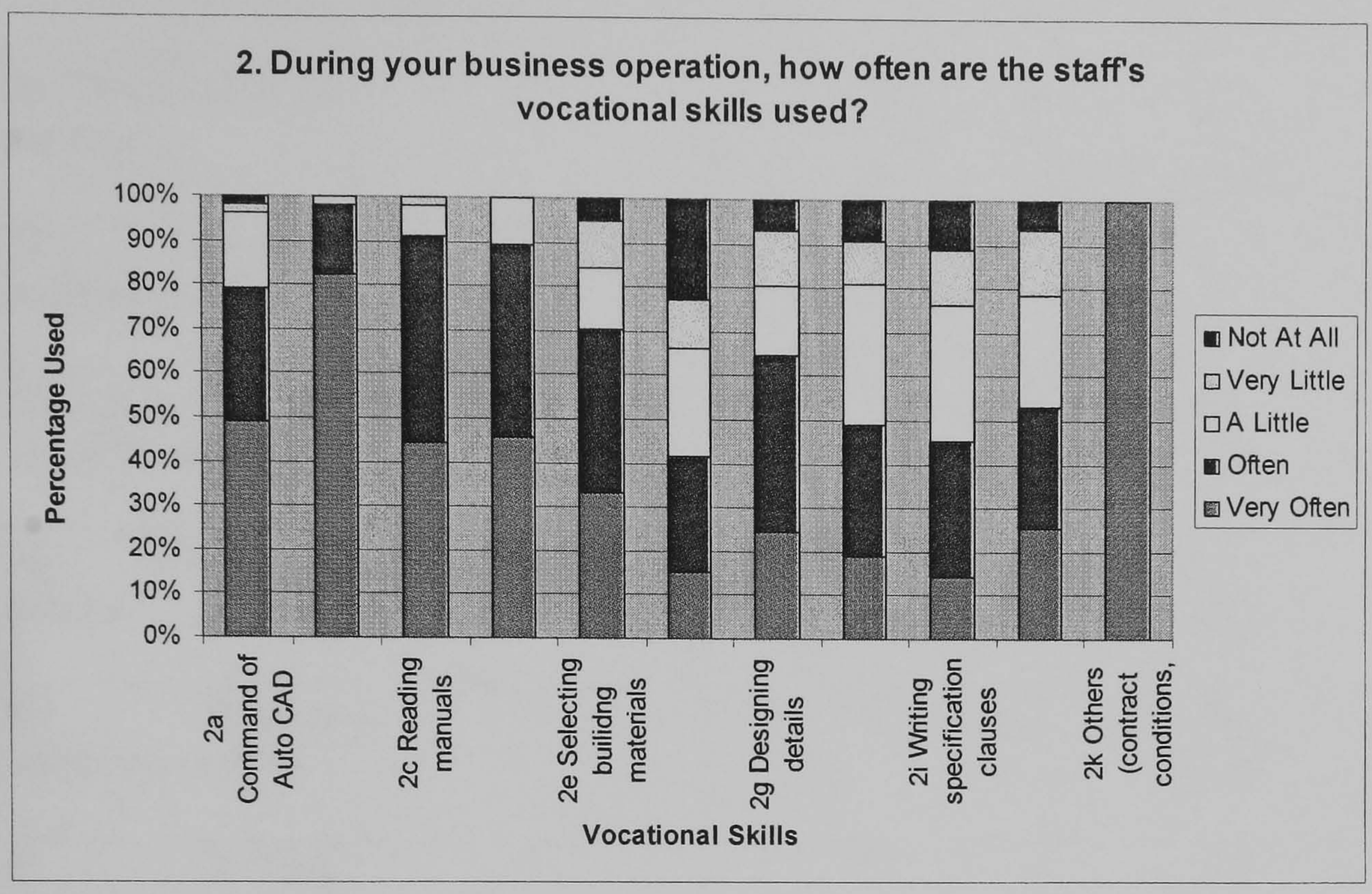


Figure 5

Apart from the above cumulative frequency curve, the more important results to Question 2 are tabulated below for an empirical analysis.

Figure 6 - **Frequencies and Cumulative Frequency of Responses to "Question 2- During your business operation, how often are the staff's vocational skills used?"**

Question	**Frequency of "Very Often"**	**Frequency of "Often"**	**Cumulative Frequency of "Very Often" and "Often" (Percentage*)**
2a Command of Auto CAD	26	16	42 (71)
2b Reading drawings	48	9	57 (97)
2c Reading manuals	26	26	52 (88)

2d Using codes of practice	27	25	52 (88)
2e Selecting building materials	19	21	40 (68)
2f Designing sizes of cables or pipes	8	14	22 (37)
2g Designing details	14	23	37 (62)
2h Writing valuation reports	10	16	26 (44)
2i Writing specification clauses	8	17	25 (42)
2j Taking Off (Measurement)	13	13	26 (44)
2k Others	6	0	6 (10)
Mean percentage ū			(59.1%)

* Notes:
1. Based on the total occurrences of 59.
2. "A Little", "Very Little" and "Not At All" are not included in the above cumulative frequency.

My respondents are of the view that the vocational skills that our graduates possess are recognized in their daily business operation. The statistical mean of the accumulative frequency for the "Very Often" and "Often" used has

come up to 59.1%. Several respondents have put down other occasional job duties including "contract conditions administration, program planning, cost estimating, liaison with others, site supervision" in the "Others".

Furthermore, I requested the respondents to review the vocational skills requirements in the future.

Figure 7 - **Frequencies and Cumulative Frequency of Responses to "Question 7 - In a few years' time from now, how often do you think the staff's vocational skills would be used?"**

Question	**Frequency of "Very Often"**	**Frequency of "Often"**	**Cumulative Frequency of "Very Often" and "Often" (Percentage*)**
7a Command of Auto CAD	20	18	38 (84)
7b Reading drawings	29	10	39 (87)
7c Reading manuals	22	14	36 (80)
7d Using codes of practice	23	16	39 (87)
7e Selecting building materials	14	16	30 (67)
7f Designing sizes of cables or pipes	4	10	14 (31)
7g Designing details	11	18	29 (64)

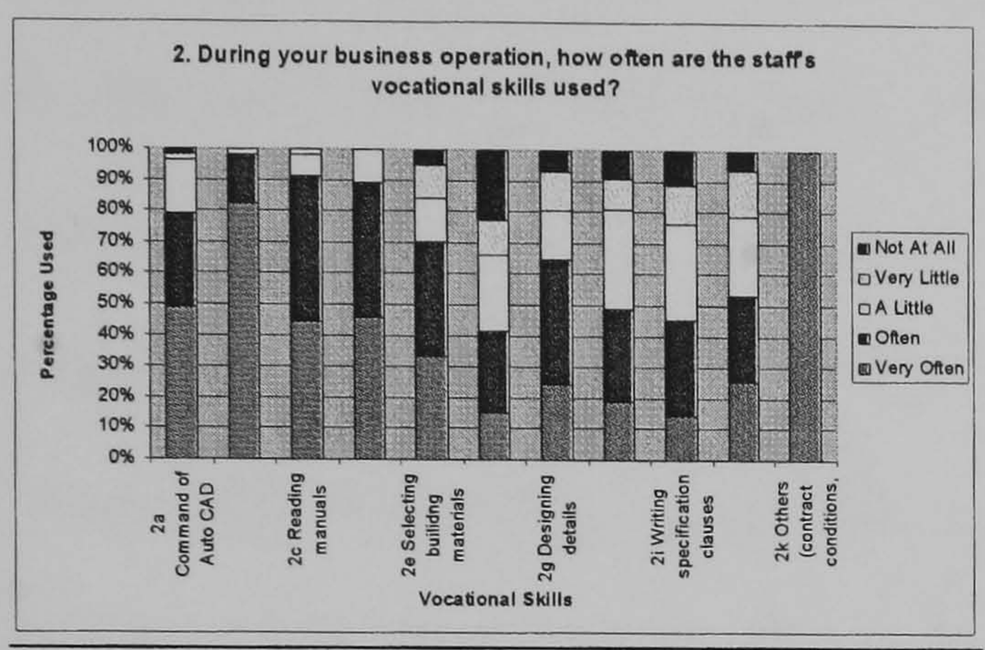
7h Writing valuation reports	11	15	26 (58)
7i Writing specification clauses	11	11	22 (49)
7j Taking Off (Measurement)	10	8	18 (40)
7k Others	5	0	5 (11)
Mean percentage ū			(59.8%)

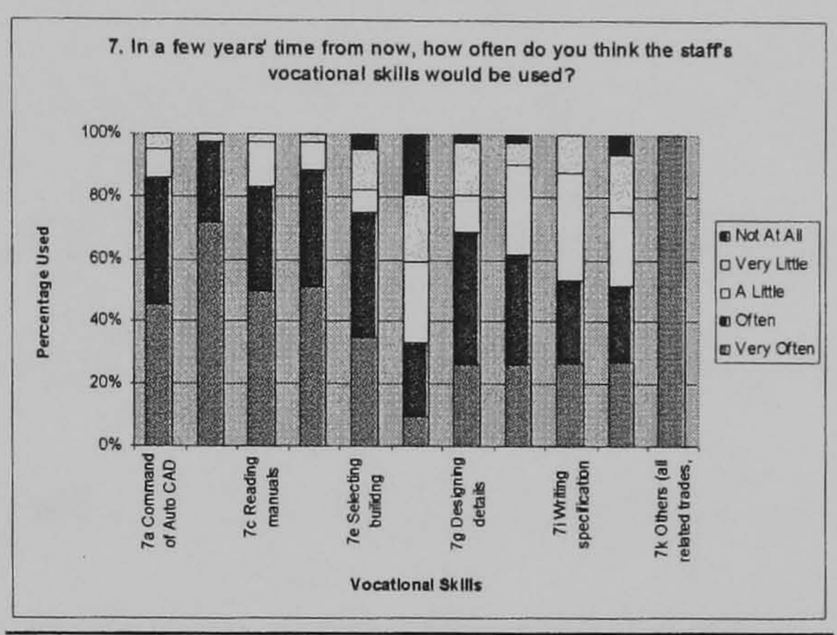
* Notes:
1. Based on the total occurrences of 45.
2. "A Little", "Very Little" and "Not At All" are not included in the above cumulative frequency.

The statistical mean of the accumulative frequency for the "Very Often" and "Often" used has come up to 59.8% which is marginally over the result for Question 2. This result suggests that employers treat vocational skills to be essential which must be possessed by their employees, for now and for the future.

Question 7 is designed to be identical to Question 2 except for the timing of their perception. I have asked the respondents to answer the same set and I put this result side by side the previous result from Question 2 for a comparison as follows:

*7. In a few years' time from now **(say till 2009)**, how often do you think the staff's vocational skills would be used?*





The maximum number of respondents for question on the left is 59, but the maximum number of respondents for question on the right is 45

In Question 5, I have asked that in a few years' time (say 2009), do you anticipate any changes in the construction related industry and therefore demanding different skills from your staff? The answer includes 38 'yes' but 18 'no'. It is 68% and 32% respectively. Notwithstanding this 32% result, some answers in Questions 7 and 8 had a higher percentage of respondents. The response rate was 45/58, which is 78% (22% did not respond to Questions 7 and 8). That is, there were 32%- 22% = 10% difference in the number of respondents who think on the one hand that there will be no change in skills in 2009, but on the other hand predict a change to some specific skills. The results are in the above two histograms.

The histograms above depict the cumulative frequency of vocational skills used under different categories. The categories are represented by their "percentage used" histograms. By referring to the two cumulative frequency histograms, I have obtained the following results. First I focus on the blue bar which means "Very Often". I observed that the right hand bars are slightly longer than the left. Secondly I compare the blue-and-brown bar which means "Very Often" and "Often". Some categories are very close to each other and in fact their statistical means are 59.1% and 59.8% respectively. This comparison shows a gradual increase in the cumulative frequency of the "Very Often" and "Often" categories on the employers' perception in the future. Vocational skills are expected to be slightly, and very marginally more demanded by employers in the future.

In addition to the above, in Part D of the Survey, my respondents have suggested some reasons for the change in the use of more vocational skills in the future. One respondent saw that customers are more educated and therefore will demand more vocational skills. Another one saw this as a result of the increased legislation requirement. More vocational skills are demanded because of more advances in electronics and information technology. Technologies will accelerate the automation of a vast amount of routine work we execute today. Due to the pursuit for economic efficiency, employees need

to know more about the technology to do the job in a cost effective way. One respondent saw that an Associate Degree employee should be a generalist but not a specialist. The future market will be more demanding and therefore will need employees to master new vocational skills.

General Skills

In Chapter 2 I have listed out the general skills demanded in the work place (Grubb, 1996; Levinson, 2005). In the earlier part of this Chapter 4 I have brought along the general academic skills accepted by EMB (1998). Based on the above, I have now compiled a list and arranged the general academic skills into a series of questions. Regarding general skills that the employers want, I have stated the following question:

3. During your business operation, how often are the staff's general skills used?
a. Mandarin (Putonghua) proficiency
b. Good English
c. Using fundamental information technology
d. Common sense
e. Problem solving abilities
f. Good work attitude
g. Interpersonal and social skills
h. Management skills
i. Others _____

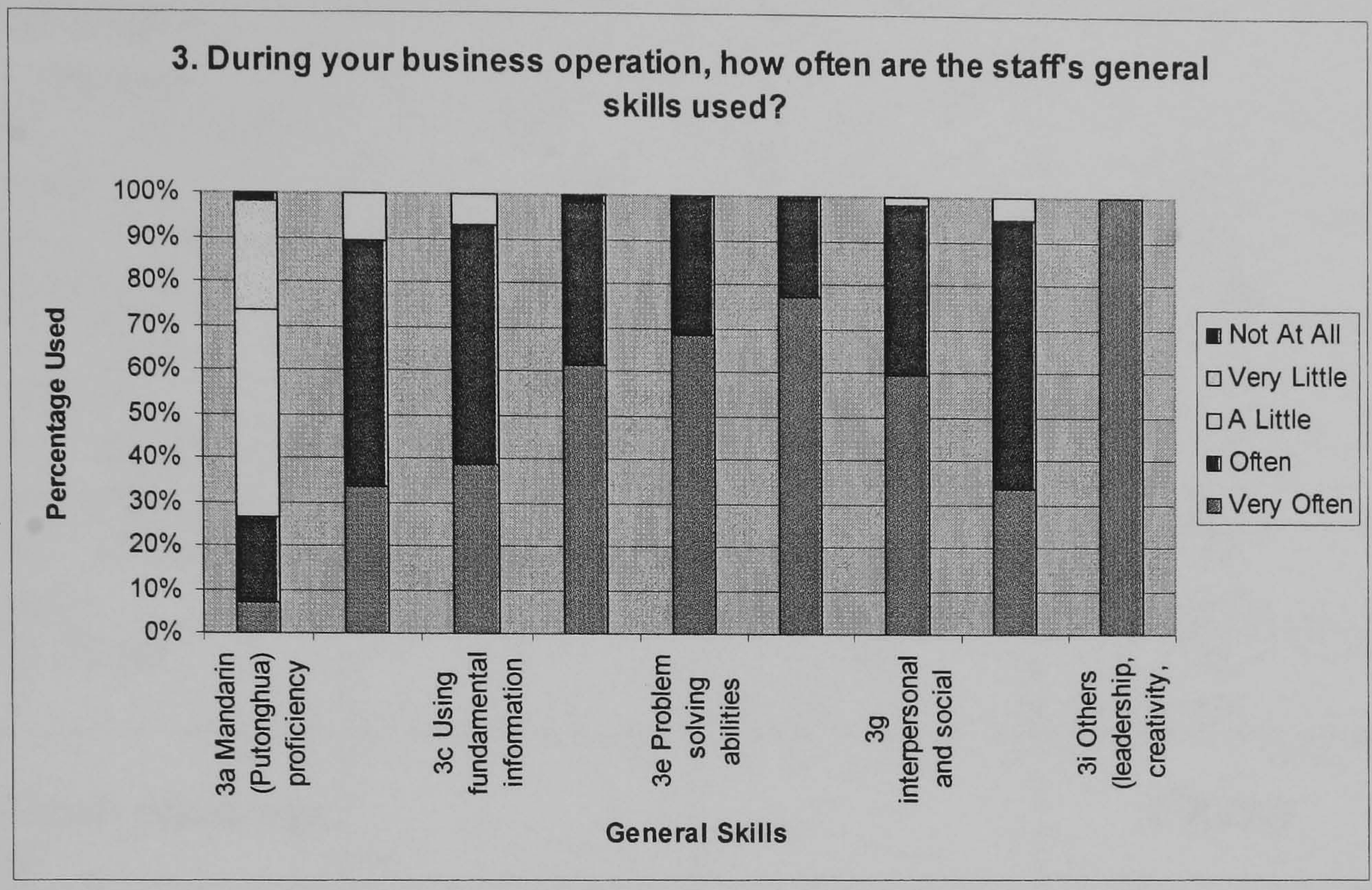


Figure 8

Apart from the above cumulative frequency curve, some important data from the answers to Question 3 are tabulated below for an empirical analysis.

Figure 9 - **Frequencies and Cumulative Frequency of Responses to "Question 3 - During your business operation, how often are the staff's general skills used?"**

Question	**Frequency of "Very Often"**	**Frequency of "Often"**	**Cumulative Frequency of "Very Often" and "Often" (Percentage*)**
3a Mandarin (Putonghua) proficiency	4	12	16 (28)
3b Good English	19	33	52 (90)
3c Using fundamental	23	31	54 (93)

information technology			
3d Common sense	36	21	57 (98)
3e Problem solving abilities	39	19	58 (100)
3f Good work attitude	45	13	58 (100)
3g interpersonal and social skills	34	23	57 (98)
3h Management skills	19	35	54 (93)
3i Others	5	0	5 (9)
Mean percentage ū			(78.9%)

* Notes:
1. Based on the total occurrences of 58.
2. “A Little”, “Very Little” and “Not At All” are not included in the above cumulative frequency.

The responses to this question are both surprising and encouraging. The fact that an official language was not highly regarded is surprising. The very fact that general skills are gaining higher weighting in the work places was encouraging. My informants are of the views that the general skills that our graduates possess are not all recognized in their daily business operation. The surprising result is in question 3a, Mandarin proficiency. The percentage used for this is very low given that the change of Hong Kong sovereignty has taken place since 1997. This fact has not improved the popularity of the use of this Chinese official language. One respondent even replies as “Not at all”. Full

mark answers come from 3e and 3f under problem solving abilities and good work attitude. These results provided continuity on Grubb's (1996) previous study about the third and fourth types of skills.

Overall, the statistical mean of the cumulative frequency of "Very Often" and "Often" used have come up to 78.9%. Apart from giving a full mark to problem solving and work attitude, respondents seemed also pleased with common sense, and interpersonal and social skills. Five of my respondents add skills in "leadership, creativity, knowing liability to third parties, Emotion Quotient, Intelligence Quotient and time management" under "Others".

Furthermore, I have requested the respondents to state their views on general skills requirements in the future.

Figure 10 - **Frequencies and Cumulative Frequency of Responses to "Question 8 - In a few years' time from now, how often do you think the staff's general skills would be used?"**

Question	**Frequency of "Very Often"**	**Frequency of "Often"**	**Cumulative Frequency of "Very Often" and "Often" (Percentage*)**
8a Mandarin (Putonghua) proficiency	20	18	38 (84)

8b Good English	21	22	43 (96)
8c Using fundamental information technology	28	16	44 (98)
8d Common sense	30	13	43 (96)
8e Problem solving abilities	37	6	43 (96)
8f Good work attitude	36	5	41 (91)
8g interpersonal and social skills	31	2	33 (73)
8h Management skills	29	13	42 (93)
8i Others	5	0	5 (11)
Mean percentage ū			(82.0%)

* Notes:
1. Based on the total occurrences of 45.
2. "A Little", "Very Little" and "Not At All" are not included in the above cumulative frequency.

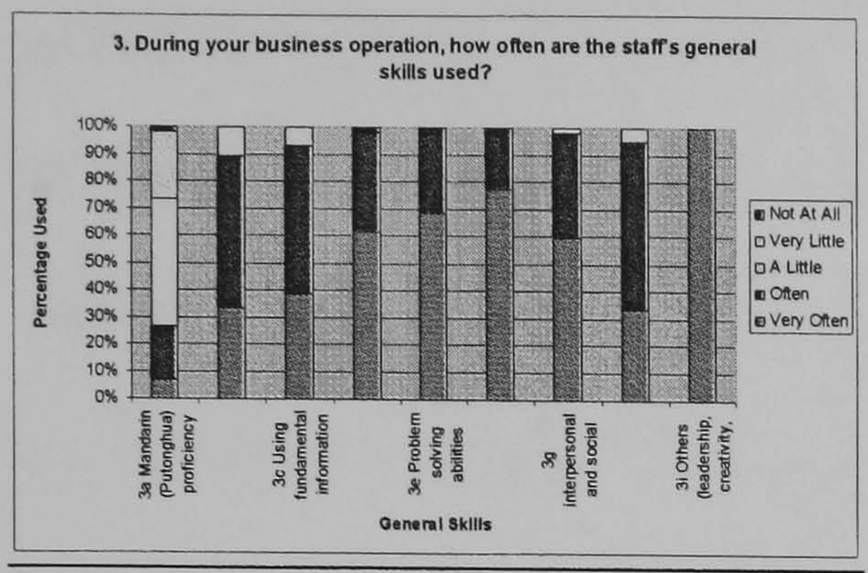
The statistical mean to Question 8 is 82.0% which is well over that to Question

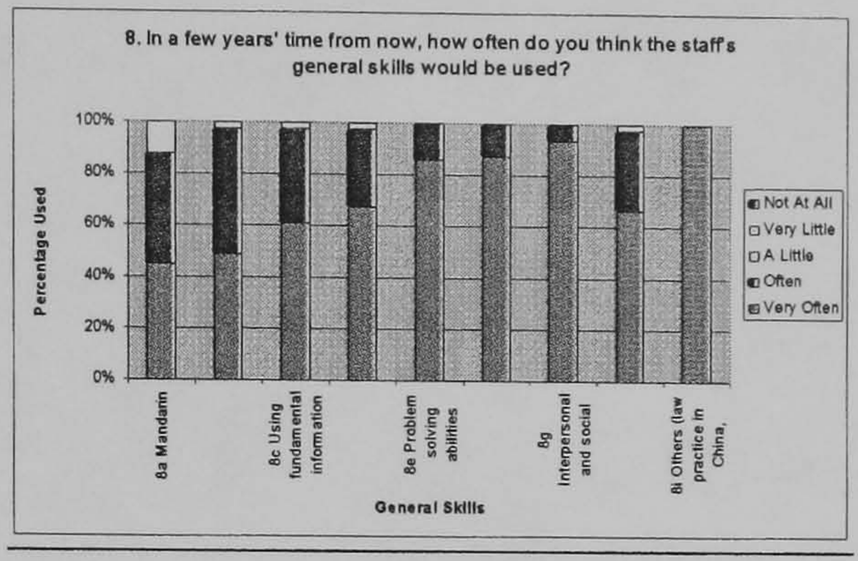
3. I have put the graphical results of the two questions side by side for

comparison as follows:

*8. In a few years' time from now **(say till 2009)**, how often do you think the staff's general skills would be used?*

Chapter 4
Findings





The maximum number of respondents for question on the left is 59, but the maximum number of respondents for question on the right is 45

The histograms above depict the cumulative frequency of the general skills used by the employees. By referring to the taller histograms on the right hand graph, the comparison shows a marked increase in the cumulative frequency of "Very Often" and "Often" categories on the employers' perception in the future. From this result, I have confidence to conclude that in the future, employers will allow more chances for graduates to use the general skills in their business operation. This part provides a remarkable finding to my study.

In Part D of the survey, my respondents have suggested their reasons for the higher propensity to use general skills as follows. One sees that general skills are results of influence from the Chinese Mainland, because there will be more involvement with projects based there. One says it is due to increased requirements of building regulation and environmental legislation. One proposes the managerial perspective to be the factor so as to let graduates handle work and fulfill duties. One suggests it is due to expansion of Mainland China market and globalization. One avers to the increase in demand and of

quality and keen competition in the industry. In order to cope with the changes in the industry, the general skills have to be improved in order to be more competitive. One believes that it helps to better prepare employees to adopt to another areas of work or working in a different environment. The last point I gathered from one respondent is mainly due to more demanding customers.

Finally both the vocational and general skills will become more important in the eyes of the employers in the future construction-related industry. But the intensity of the general skills is much more significant than that of the vocational skills. All the above postulations point to a more demanding and therefore a risky future in Hong Kong which demand the extension of general skills in the business setting. This result is in line with the Economists Krueger and Kumar (2004) suggestion that workers with general education can operate new, risky technologies, whereas vocationally trained workers are more efficient in operating old and established ones.

4.1.6 Support to the Previous Results

I have to provide support to my evidence by finding out more from employers and graduates. Pursuant to the survey, I asked to meet an employer who put

down contacts in the survey. He pointed out that certain things are lacking in the education in general in Hong Kong. Things have not been taught in University up until now that enable students to develop a more open vision of the Chinese Mainland and there is a mismatch of what is taught and what is being wanted by the employers. For example, no Putonghua (Mandarin) is being taught, nor is spelling of Putonghua and pronunciation taught either. In the schools, teaching is still based on the mother tongue of Cantonese Chinese, but not on Putonghua (Mandarin) Chinese. Also the students are not learning the abbreviated Chinese characters prevalent in the Chinese Mainland.

Apart from the weak language skills, this employer further slated the job-specific skills in architectural design. Fresh graduates unfortunately lack common sense and possess an irresponsible work attitude - the fourth skill observed by Grubb (1996). Even after being qualified as an architect, the graduates still show a terrible lack of common sense. When one architect is required to design buildings in Dailin in North Eastern China, for example, one does not appreciate the local need for a thick slab under a wall, cold region double glazing, orientation of windows and balcony as against what they have learnt for Hong Kong's sub-tropical climate. This is common sense and it does not need to attend a technology lecture to know this.

In a similar vein, another employer also sees a similar deficiency in the graduates' capability in general. This employer is not in the survey list but happens to be interviewed and to have a chat with. In a freshmen orientation day one surveying employer was invited to speak to the students. He also felt the similar need to instill the common sense concept, again advocated by Grubb (1996), for our students. Graduates do not dare to use their common sense. This is true not only in the University but is also true in the workplace. He stressed this approach by quoting the use of common sense in writing, which allowed students to score high marks. He advised all students to firstly understand the questions and then try to think what are being asked behind them, and thereafter focus all efforts towards these targets. He encouraged students not to be afraid of trying things innovative, or trying things they have never tried before. He said, "your effort will pay off and you will earn high marks!"

A past higher diploma graduate also spoke about the same topic in this same freshmen gathering. He noted that many building surveying graduates do not work as building surveyors after graduation, other fields like general practice and quantity surveying are also open to them. The reason for that can be varied but he pointed out that the exact type of vocational knowledge learned in a program may not be needed in a job. A mismatch of skills is very common in

the professions. What has been found more important might be the interpersonal skills and the skills of communication! He has gone into an extreme by saying that general educational skills are basic and essential, but as soon as you have these skills, the vocational knowledge is of secondary level of importance. He postulated this to stress the need to use the mind more often, vocational knowledge gained during schooling could have a short "half-life[12]" and it could slip away without being noticed. What is more important is the cognitive knowledge, like the ability to analyze or the ability to solve problems.

Having said this, he supplemented this by saying that vocational knowledge for the quantity surveyor is more important. If you know not enough about the terms used by a quantity surveyor, when confronting a builder, you will soon be knocked out because you do not look like you are in the business.

4.1.7 Preferences of the Professional Bodies

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12 The time required for half of the quantity of vocational knowledge to become obsolete and useless.

The Associate Degree programs are designed to supply graduates to meet the need at the level of "para-professional" or "technician" grade of the construction related industry. Para-professional is an official qualification espoused by the EMB earlier in this Chapter. Traditionally in the UK system, it has been using the technician grade to refer to the level of staff between a professional and an unskilled office worker, but now a para-professional will be a stylish term in Hong Kong. A comparison table below shows that the four AD programs studied are recognized by their respective professional bodies. These bodies include the Hong Kong Institute of Architects (HKIA), Hong Kong Institution of Engineers (HKIE) and Hong Kong Institute of Surveyors (HKIS). They have their individual constitutional functions and social roles to play in Hong Kong and the majority of their membership are Full Members. As for "para-professional" membership, the professional bodies have allocated different designated titles to this class of members, including Affiliated[13] Member for HKIA and Associate Member for HKIE and Technical Member for HKIS. From this perspective, "para-professional" or "technician" memberships might not be the mainstream membership and therefore it is not the bodies' main concern.

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13 This class of membership has yet to be approved.

Figure 11 - **Summary of Professional Bodies Responses**

Institutions	Membership to Admit AD Graduates	Restrictions Imposed	Views on Vocational Skills	Views on General Skills
HKIA	Affiliated#	None	More Favour	Favour
HKIE	Associate	None, except 50% on Engineering, Mathematics and Computing	More Favour	Favour
HKIS	Technical	None	More Favour	Favour

 # Pending approval by the Institution

The representatives of three professional bodies have been telephone-interviewed and the HKIS has supplied an additional written response to the interview schedule. The interview schedules and the record of the translation are now appended to Appendix C for reference. The existing President of the HKIA has directly taken the interview questions. Whereas it was the Chairman of the Education and Registration Board of the HKIE and the Chairman of the Education and Membership Board of the HKIS who have taken the interview questions to share their opinions. As mentioned, the Immediate Past President of the HKIS has written to provide his comprehensive view about my questions.

In the last chapter I have quoted from Hoyle (1965) that because the professional practice is so specialized, the organized profession should have a

strong voice in the shaping of relevant public policy, a large degree of control over the exercise of professional responsibilities, and a high degree of autonomy in relation to the state. However, the Associate Degree programs are designed to meet the needs of the level of "para-professional" or "technician" grade of the professional bodies and this unfortunately is not the primary concern of these bodies as noted.

The four professional body office-bearers interviewed have admitted that there are no stringent requirements regarding the type of curriculum that AD programs should run to render the programs to be recognized. *One respondent said that the professional body has been deliberate to leave it flexible for the AD programs to develop their own content. It was reiterated that apart from the 60% engineering requirement, 5-15% for mathematics and computing, there would have no restrictions on the curriculum, especially on soft skills*[14].

The professional bodies have a common concern though. One institution has frankly admitted that the main drive is on the membership figure, an intermediate entry at the technician level could improve the current low passing rate for Graduate Member to become Full Member. For similar reasons, another institution is very open in accepting the associate members

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[14] General skills are called soft skills.

entered at a level different from the Full Member. Likewise, one final institution is wary of the lack of middle personnel in the industry, the respondent has been quoting "*too many chiefs with no Indians*". They all believe that *there is a merit for the AD programs to stay on as there are too many Bachelor Degree Graduates who are, with due respect, of lesser expected knowledge of an university graduate today.*

Because of the lack of stringent conditions in the choice of AD curricula, when asked to comment on the type of skills that graduates should possess, professional bodies generally preferred to follow the choice of employers i.e., to equip graduates now with an equal balance of both vocational skills but a slightly higher balance of general skills in the near future. One informant institution revealed their observations that *during program accreditation activity to visit universities in Hong Kong, their team has met many employers and has had chances to discuss curriculum planning with them. They expressed to the team that programs should be balanced to meet the need of the industry. The institution would have thought that there is a future tendency to require more soft skills than the basic engineering skills.*

One respondent institution also voiced the importance of not neglecting vocational skills lest the huge supply of manpower over the border from the

Chinese Mainland would easily fill up the Hong Kong technician market. The interviewee did not take the point that *vocational training is not necessary. It was stated that if Hong Kong is not going to have any formal vocational training, then these vocational skills would be trained to Mainlanders who eventually would compete with Hong Kong students. As employers, they would need the support from technicians but on the other hand they would not care where they came from so long as when they need them they are available.* Training our AD graduates with up to date vocational skills is the only way to keep the competitive edge of the technicians against the competition from the Mainland.

Apart from this last opinion, it is noted that because of different objectives, it would have been thought that professional bodies have not functioned as a direct stakeholder in shaping the curriculum for Associate Degree programs as originally envisaged by myself and so faithfully followed by program leaders during their interviews.

4.2 CHAPTER SUMMARY

My findings are based on the views of key stakeholders in the AD curriculum. In summary, I have interviewed four program leaders and studied the way they see what curriculum should go in an AD program. The Government stance has been obtained from analysing documentation promulgated by the EMB. Based on this information, a questionnaire was designed and commissioned to survey 599 employers in Hong Kong. The results of the 60 survey forms that were returned were analysed. Based on these questions and results an interview schedule has been designed to interview three professional bodies in Hong Kong. The results were triangulated based on various sources including those from volunteered employers and graduates.

The existing AD programs have inherited a higher concentration of the vocational skills in the curriculum. There are only 26% general skills in these current programs.

The Government through the EMB has been very keen on promoting AD programs to equip students with generic skills as well as specialized

knowledge/skills that are sufficient to enable them to perform effectively at para-professional level. In short the fund provider wants AD programs to provide focused, vocational knowledge of the discipline and hands-on expertise at the para-professional level.

The Government Labor Department is an employment agency which collects skill requirements for technicians in the construction industry. From the Advertisement, a summary of the skills can be drawn into four categories: computer literacy, language skills, interpersonal and intrapersonal skills.

Program leaders agreed that their programs have a strong vocational content. But they are reluctant to increase the percentage figure for general skills in the curriculum lest the professional bodies might not like this increase. Nevertheless, program leaders considered general skills as being very important in curriculum design but refused to increase their present percentage figure. They believed that if students are given enough resources and sufficient guidance by their teachers they can always achieve the kind of skills society wants. Apart from these program leaders therefore proposed a number of alternatives to incorporate these general skills, such as industrial attachment or training in the summer, hidden courses or self-directed learning.

Employers have confirmed the list of vocational skills that I have sent them. These are technical expertise and know-how including the use of Auto CAD, reading drawings and manuals, using codes, designing sizes, details and writing specification, report writing and taking measurements, etc. The result showed that these skills are recognized as routine in the daily business operation.

Employers' preference for general skills has been clearly demonstrated in the answers to Survey Question 3. There is a strong message from the results that AD graduates must be provided with skills in English, common sense, problem solving, work attitude, interpersonal and social skills. Some employers have enthusiastically supplemented the answer by providing skills in leadership, creativity, emotion quotient, time management, etc.

Employers predicted a gloomy economic situation in the future. This will mean that their employees will have more chances to use the general skills in their business operation.

Mandarin is needed only for those employers who have extended their businesses to the North and have demanded Putonghua skills from their employees. In the checking exercise employers and graduates have stressed

the importance for acquiring both vocational and general skills. AD graduates must start off with solid vocational skill ability and continue with and boosted with competent level of general skills. These preferences expressed showed marked similarities with the observation found earlier by Grubb (1996) in his study.

The professional bodies I studied are more concerned with the sufficient supply of para-professionals or technicians to the industry than with the balance on the type of vocational skills or general skills that these student members should receive. Professional bodies agreed with the employers' view that programs should be balanced in the vocational and general skills to meet the need of the industry. Professional bodies opined that students should not lack up to date vocational skills or else the huge supply of students from the Chinese Mainland will fill all the technician jobs in Hong Kong.

From the above results I am satisfied that the questionnaire is valid because it takes into account the views of all key stakeholders and from here I intend to draw some conclusions about the way forward for the AD curriculum in the final Chapter.

CHAPTER 5

SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND AREAS FOR FUTURE RESEARCH

5.1 SUMMARY

The study identified the key stakeholders' preferences regarding the AD curriculum in Hong Kong . The investigation had two aims:

1. To analyze the relative proportion of job-specific skills in relation to academic skills content in the curriculum of Associate Degree students in the construction-related industry;
2. To assess the views of the program leaders and key stakeholders regarding the relevance of the existing AD curriculum for satisfying their needs in the context of a knowledge economy.

The views of the program leaders together with three groups of key stakeholders, namely the government, the employers and the professional bodies have been identified.

With Hong Kong's move towards becoming a knowledge economy, the EMB has been implementing the government policy to increase the number of

students participating in higher education (HE). The expansion of ADs is part of this policy. In terms of learning outcomes for ADs, the EMB prefers a very comprehensive list of generic skills plus a focused and vocational knowledge suitable for para-professionals.

The study has identified the types of employees' vocational skills preferred by employers within the construction industry in Hong Kong. They are:

a. Command of Auto CAD
b. Reading drawings
c. Reading manuals
d. Using codes of practice
e. Selecting building materials
f. Designing sizes of cables or pipes
g. Designing details
h. Writing valuation reports
i. Writing specification clauses
j. Taking measurements

The respondents were from different backgrounds and profiles in the construction-related industry, they nevertheless agreed that these skills are recognized as routine in the daily business operation. When asked how often these skills were required to be used, the responses have been very positive with 2b - the ability to read drawings topping the list. My list of vocational skills is not exhaustive as some respondents have supplemented it by suggesting some other possible vocational skills. The result demonstrated continuity to a previous study (Grubb, 1996), namely, that employers

recognized job specific skills as being essential. This comparison shows a gradual increase in the cumulative frequencies in the "Very Often" and "Often" used categories in relation to the employers' perceptions of the future. Comparing the statistical means of Question 2 (59.1%) and 7 (59.8%) of the employer survey, the use of vocational skills by their employees in the future will more or less level out in four years' time.

In Chapter 4, my respondents have suggested some reasons for the undiminished use of more vocational skills in the future. Some saw that customers are more educated and therefore will demand more vocational skills. Others saw this as a result of increased building regulation and environmental legislation requirements (responses to Part D of the Survey). More vocational skills are demanded because of advances in electronics and information technology. Technologies will accelerate the automation of a vast amount of routine work we execute today. Due to the pursuit of economic efficiency, employees need to know more about the technology to do the job in a cost effective way. Some saw that an Associate Degree employee should be a generalist but not a specialist. The future market will be more demanding and therefore will need employees to master new vocational skills.

The study has identified the types of general skills preferred by employers in Hong Kong which are:

a. Mandarin (Putonghua) proficiency
b. Good English
c. Using fundamental information technology
d. Common sense
e. Problem solving abilities
f. Good work attitude
g. Interpersonal and social skills
h. Management skills

The results showed that these skills with the exception of the Mandarin proficiency, are all preferred by employers. Mandarin proficiency was surprisingly not preferred by employers since the mainstream workplace relationship in Hong Kong was not based on the use of Mandarin. The results for questions 3e and 3f have been given full marks, which means that employers are overwhelmed by the problem solving abilities and fine work attitude of their employees. When asked how often these skills were required to be used, the aggregate total for the frequencies of "Very Often" and "Often" has scored a statistical mean at 78.9%. Comparing this result of Question 3 to that of Question 8 (82.0%), I can see that the demand of employees' general skills by the employers in the future will gradually increase.

Comparing the two results from the vocational skills and general skills, the latter has a significantly higher score in the cumulative frequencies of the

"Very Often" and "Often" used category. This result seems to be providing a direction for the AD program curriculum in the future. However, remembering that in Question 4 I have asked what should be the more important AD skills, the answer "equally important" has been the dominating response. Judging from the results in the last paragraph, I have found the true picture. The findings lead me to conclude that in the future, employers will allow more chances for graduates to use the general skills in their business operations. This is an unmistakably clear answer to the research question. I have also gathered the suggested reasons for this higher propensity to use general skills. They included the influence from the Chinese Mainland and the increased requirements arising from new building regulations and stringent environmental legislations. The office-bearers from the professional institution (see HKIS Questions 3 & 4 at Appendix C) proposed the increased influence of the managerial perspective to be the factor so as to let graduates handle work and fulfill duties. One suggested it is due to the expansion of the Mainland China market and globalization. One referred to increases in demand and to quality and to keen competition in the industry (see HKIS (written) Question 5). In order to cope with the changes in the industry, the general skills had to be improved in order to be more competitive. One believed that it helps to better prepare employees to adopt to other areas of work or working in

a different environment. The last reason was there were more demanding customers and they required more use of their employees' general skills .

The three professional bodies interviewed suggest that a free hand should be given to the HE institutions regarding the type of curriculum that AD programs should run in order to gain their professional recognition, particularly in relation to the emphasis on the type of general skills that students should be exposed to. From this point of view, professional bodies have not participated as a direct stakeholder in shaping the AD program curriculum as originally envisaged by myself and so obediently followed by program leaders. Following the policy and practice of the professional bodies was a norm for some professional people, it would be unthinkable if they have to divert from this practice.

Having considered the above summary, with hind sight, I would reckon the following research questions put forward in Chapter 1 now fully answered. The answers to these five research questions have spread throughout Chapter 4 but with some mentioned in Chapter 2, I am now extracting these findings and summarizing them against each Research Question as follows:

5.1.1 Important Findings to Research Question 1 - The Factors That Have Shaped The Existing AD Curriculum

In Chapter 2, I have revealed the following social forces which have shaped the existing curriculum. The reason for the existing AD Curricula came into being is historical, they are remnants of the past. Lo (in Bray and Koo, 1999) conceded that curriculum reforms are greatly influenced by social forces. Indeed the historical development of Hong Kong illustrated the need for either a vocational or a general education curriculum throughout the history of Hong Kong. New forms of skills are demanded in modern knowledge-based economies. What are needed are not only new skills and crafts but also higher level learning including Reich's (1991) system thinking as in Chapter 2. The present AD programs have been grafted from the past higher diploma programs which were vocational both by name and by nature. The higher concentration on vocational skills is a result of this heritage. The Government is the sole fund provider of the programs. Supposedly the chief shaping force must have come from the Government through the EMB. In Chapter 4, however I have revealed that nothing of this sort is evident from the official curriculum documentation - there are as yet no sophisticated constraints promulgated by the EMB in running the construction-related programs. In the same Chapter, I have recorded the confirmation given by the program leaders that the program has up until now been vocational in content. They explained

that it has always been vocational because of the professional institute's requirement. He added that the graduates from the program must be trained with the knowledge sufficient to carry out professional practice. This last statement tied in very well with the EMB's homepage statement that AD programs should provide focused, vocational knowledge of the discipline and hands-on expertise at the "para-professional" or "technician" level.

5.1.2 Important Findings to Research Question 2 – How Are Vocational and General Skills Defined?

In Chapter 2, I have considered the four skills put forward by Grubb (1996). They include 1) the job-specific skills; 2) the academic skills; 3) the motivation, initiative, judgment and appropriate attitude; and 4) the aptitude and common sense. I have tried to locate these skills in the existing AD curriculum but the result is not entirely satisfactory. In Chapter 3, I studied the Program Handbook. There is information in the handbook about the aims and objectives of each program and I can identify some general skills outcomes from these statements. There are also different vocational skills mentioned in the publication. No definitions were made about the two types of skills. The closest definition has been given to the "general education credits" which include Chinese Civilization and Cultures, the courses from the English Language Centre and the Out-of-Discipline courses. One interviewee program

leader admitted that there is no definition for general education and he did not want to define it too loosely. One program leader has defined general education skills as broadly to include astronomy, geography, social and political sciences, history and culture, etc. In the transcript to the structured interviews (see Appendix B for details), I have mentioned about my showing the interviewees some examples of the required general skills which I noted from the Labor Department. Some program leaders showed their concern that there were not enough room to accommodate the training of skills like communication, team building, creativity and problem solving. They were not sure where the skills should be incorporated and henceforth refused to formally accept them. At the time of writing situations in the institution are now quite different. Colleagues in general are now more active in the discussion to incorporate the general skills into a reviewed curriculum. The institution is moving collectively toward assessments aligned with the outcome-based learning strategy, therefore teaching staff have received relevant skills workshop training, updates and exposure to this new idea of making general skills part of the assessable curriculum. It is interesting to note that the new curriculum will have to incorporate the following ingredients: knowledge and understanding; practical professional skills; and intellectual and transferable skills. They are by no means the same as Grubb's division of skills, but from the proposed curriculum content review, it is envisaged that

there will be a substantial deviation from the previous curriculum format in which more general skills will be made more explicit.

5.1.3 Important Findings to Research Question 3 - The Balance Between Academic and Vocational Skills in The Existing AD Curriculum

The higher diploma heritage has kept the previous vocational characteristics. At the present moment, the curriculum has got a heavy concentration on vocational skills. There are about 26% general skills content within the four programs and the rest are made up of vocational skills. However, the program leaders disclosed that the 26% figure has not included those general skills that are built into the vocational courses. They remarked that some general skills like presentation skills, team building skills, time management skills are important and they are all included in the studio work or in the students' final year projects. These skills will not be taught and assessed like the other vocational skills but will only be mentioned and stressed in tutorials or in out-of-classroom activities, nor will they be specified in the curriculum. On the question on how these "hidden" general skills are assessed, one respondent program leader proposed the use of problem-based learning (PBL) to do the assessment. Even so, the results of the successful precipitation of general skills may not be readily available because there are no explicit credit units assigned to them. There are definite assessment avenue to gauge if the students have got

a good grasp of the vocational skills, like the choice of the correct building structure for a design, but we won't know, on the basis of existing assessment procedures if they have learnt the problem solving skills, team building skills creativity or interpersonal skills. Rather, we need to wait for a few years when we received an indirect feedback from the employers, graduates or members of the departmental advisory committee or from the professional bodies before we know the efficacy of these hidden learning objectives. So how can we resolve the problem of accountability, if we are made accountable to the key stakeholders about the AD curriculum?

5.1.4 Important Findings to Research Question 4 - The Views of The Key Stakeholders Concerning The Relevance of The Skills Taught in Existing AD Programs

In the program handbook, vocational skills are detailed in the syllabus content as the important objectives. There is however, not much mentioned about the general skills component. I have supplemented my study in Chapter 4 by listing the EMB's suggested general skills which include: languages, IT, interpersonal, communication, quantitative and analytical skills. These skills are consistent with the requirements stated in the "Ad Slips" obtained from the Labor Department, which are: computer literacy; language (English and Chinese) skills; interpersonal skills; intrapersonal skills; and other vocational

skills as drafting drawings, electrical knowledge, electrician license, experience in hospital maintenance, tendering, inkjet & laser printing. I have shown these vocational and general skills requirements to the respective program leaders and they are satisfied that these skills are necessary, although some general skills are considered "hidden" in the curriculum. Because the vocational and general skills exposed so far are considered essential, therefore they are included in the questionnaire survey aimed to be sent to the AD-related employers for their consideration. I have abstracted the vocational and general skills and asked for their views. There are two sets of results. Firstly, the views were that the mentioned vocational skills are recognized in the graduates' daily business operation. Secondly, the views were that the mentioned general skills were also recognized in the graduates' daily business operation. From these two sets of results I found that the views on the vocational skills and general skills are positive and the existing AD curriculum is providing the right type of skills needed by the employers.

5.1.5 Important Findings to Research Question 5 - The Preference of The Key Stakeholders Concerning The Skills That Should be Taught in the Future AD Curriculum and The Preferred Relative Balance Between These Two Skills

The responding employers opined that the vocational skills are recognized in the daily business operations. They agreed in a great majority that for now both the vocational skills and general educational skills are equally important. Let's say they are of equal proportion, although my professional body office-bearer interviewee has refused to put down a hard and fast figure for this balance. However, it is essential to note in the future that the needs for vocational skills in the construction-related industry would remain, but the needs for general educational skills will increasingly overtake the needs for vocational skills. The respondents saw this as an on-going trend because of increased building regulation and more stringent environmental legislation requirements, more advances in electronics and information technology and more pursuit for economic efficiency. They saw that the demand for general educational skills would continue to follow a rising trajectory. The data showed that they expected the increase not to be gradual but quite drastic. They explained this increase by the greater demand for quality and the more value-demanding customers. The office-bearers of the professional bodies who responded opined that there is a future tendency to require more general skills than the basic engineering skills.

5.1.6 Key Findings, Significance and Limitations

Chapter 5
Summary Conclusions

Having obtained the important findings from the above five research questions, I am listing below the key findings by way of conclusion.

Employers agree that vocational skills remain important but general skills will become important. Program leaders of the four programs studied have expected more general skills be included in the existing curriculum but there are not sufficient resources under the present funding mode to realize the expectations so they have to do informal implementation on their own. When planning a vocational-based Associate Degree program it is important to adopt the following principles. A well-planned vocational program integrates vocational education and general education. The vocational development should be built on a sound basis of general education.

The above results and findings are subjected to the following limitations if later similar studies are to be pursued.

1. The study on the employers' preference used a mailed-questionnaire survey research method. Its limitations stem form the inherent limitations of this method;
2. The sample companies list, while generated from the institution-related firms in Hong Kong, was not a true representation of the entire population of firms who can employ graduates of the AD graduates.

Those firms excluded were not on the "Builders' Directory" and they are small-sized companies or dormant firms not wanting to spend expenses on promotion. There are at least 20% firms not included in the sample;

3. The questionnaires were self-administered and thus human errors are deemed to be present;
4. Measurement errors must be assumed to be present in the instrument used; and
5. Time and cost factors prohibited gathering information from non-respondent companies regarding their lack of response.

The preference of skill in an existing curriculum is a result of the comparison and competition of the most preferred skills of the various key stakeholders. This is particularly true when it is found that the AD programs are sponsored by only a few key stakeholders and the financial support can be interpreted as dictating on the type of skills to be included in the curriculum. The University Ordinance has imposed a particular preference through the statutory device as the Academic Board. The result is a top-down imposition of the skill requirement. My previous interview and study had met considerably difficult issues when confronting the program leaders. There were sensitive things which they could not say further and these things alluded to the top-down

imposition as above. There was therefore a general resistance and reluctance for the individual program leaders to expose more on the reason why more general skills are to be instilled on the curriculum but as they are too powerless to make this recommendation as not to use up the available resources. The limitations to the study rest with the type of Associate Degrees too. Government-funded AD programs can choose to follow a balanced curriculum of both the general and vocational skills whereas the self-funded AD programs will have a different set of parameters, and these self-financing programs will not be construction-related because they are too expensive to start off with. The parents can be a significant stakeholder on the curriculum design of most AD programs, given the more vocal role they have recently taken in the knowledge-based economy. However, it is pertinent that parents be allowed to gain adequate knowledge on the curriculum information to enable them to break the barrier that AD programs are merely a stepping stones to enter the second-year undergraduate program. Such promotion and information dissemination must be more randomly done. Lastly, regarding the policy making process in the institution, it must be emphasized that this has not been the main focus of the research and study, apart from highlighting the key characteristics of the policy making process, I suggest that a more detailed investigation of the policy making process with respect to implementing change would be a useful area for further research.

Finally, I would draw the following conclusions from my study.

5.2 CONCLUSIONS

There are seven significant, new and original conclusions that can be drawn from this study concerning the Associate Degree programs for the construction-related industry in Hong Kong.

1. The present AD curriculum for construction-related courses do not provide explicit reference to general skills although these are increasingly required by employers;

2. Through its online "Ad Slips" the Labor Department has clearly indicated that it wants to employ workers possessing both vocational and general skills;
3. EMB's defined skills are made as a short statement online and promulgated to the public, apparently the Government would like to see some AD programs as being vocational whilst others non-vocational, there is not yet any sophisticated guidelines concerning the balance promulgated by the EMB;
4. Employers generally accepted that the existing vocational skills we teach our students are useful and will remain useful in the future;
5. Employers agreed that the general skills are useful and will continue to be demanded following a rising pattern in the future;
6. Professional bodies did not impose restrictions on the AD curriculum, especially on the type of general skills that students should learn and there is a tendency to require more of these in the future;
7. Program leaders were concerned that given the limited credits in a program, there may not be enough room in the existing curricula to teach and assess students' general skills and argued that these additional skills must be taught during extra-curricular activities.

5.3 RECOMMENDATIONS

I have found that AD curriculum which contains vocational skills are in fact infiltrated with increasing general education skills, but they are not made explicit in the course content. I was informed by employers in Hong Kong that general skills are equally important as vocational skills, although the latter skills are viewed as essential to begin employment. When asked to postulate the situation in four years' time in the future, employers are of the view that general education skills will tilt the balance. However, it is argued in the thesis that Hong Kong economy is changing in a globalization trend and so are the types of industries. Therefore, the AD curriculum must be based on the perceived new role of the work force to preserve the vocational skills but instill more general skills in order to meet the expectations of the employers and the professional bodies.

To go along with the above findings obtained from the long study above I have the following recommendations:

1. Reviewing the individual curriculum in a piecemeal way will not suffice. Program leaders have admitted that general education skills are always amalgamated in the curriculum in a "hidden" manner, however, they are

not explicit and not assessable like other vocational skills. To make these hidden and yet important general academic skills explicit, a substantial change to the curriculum is necessary. However, if the review is meant to be meaningful and effective, it must be carried out in a holistic way. A review on an institutional scale would be necessary to make an effective change to the curriculum.

2. To institutionalize such a change it is important that all key stakeholders have to be involved to make the change effective. Depending on the varying degree of involvement, it is thus expected that members of the advisory committee, the professional bodies, the alumni organization, the program leaders and the teaching colleagues ought to be involved.

3. Some of the vocational skills or the general academic skills could become obsolete in a short time span. To make the AD curriculum updated and to provide the right balance of vocational and general skills, it is worthwhile for the reviews to take place regularly and where an urgent review is required, on a case-by-case basis.

4. I concur with the general opinion from many respondents in the study that vocational skills and general education skills in AD curriculum should be equally important. The two types of skills should be given equal opportunity to appear and to be assessed in the curriculum. All

stakeholders including students should be given access to such information in the curriculum.

5. Many of my responding program leaders have been concerned about the overloading of credits by incorporating the general academic skills and their assessments in the vocational courses. To allay their fear, it may be recommended that extensive use of case studies, technical reports, reflective journals, diaries or log books are to be mixed with the lectures of the technical courses. In this way, students' acquisition of their technical know-how could be facilitated without resorting to additional resources.

6. Student-centred learning can accomplish more than we expected. I recommend an education system which places students' learning at the centre. A system which has intended learning outcomes aligned with teaching and learning strategies and their appropriate assessment strategies. It would then be able to accommodate both the vocational skills and general education skills within a curriculum.

5.4 AREAS FOR FUTURE RESEARCH

The findings of this study suggest several questions which should be addressed by future research.

1. Associate Degrees are proliferating in the HE of Hong Kong. If the result of the dissertation is useful to the construction-related industry here, can a comparative study be carried out in the Chinese Mainland where educational systems are being revamped and national workforce being retrained?

2. How would the preferences for the vocational skills or general skills be changed in different economic conditions? The economic situation has been very volatile and buoyant since Hong Kong returned to China eight years ago. The economic volatility is likely to stay for a foreseeable period of time and more economic changes are expected to occur. In a similar vein, the markets in the Chinese Mainland or other countries in the rest of the world are also very buoyant under a powerful global influence. It would be extremely useful to carry out a comparative study in these countries where there are similar programs and similar conditions. This might allow a sharing of good practices as well as a consideration of the present curriculum in a different context.

3. Do parents' preferences also affect curriculum design? Parents could be counted as one of the key stakeholders. HE in Hong Kong is not

completely free. Most parents have to arrange funds to provide for their children's education. I did not include parents as a stakeholder in my present study because there has been no authority to include them. However, as my study goes and research data becomes available, now that many parents voiced their views publicly in the media to express their concerns about the Associate Degree issue. Those legislators from the education functional constituencies and those directly-elected legislators indeed will certainly put pressure on the Government to make sure that she will spend the government fund properly on the right type of education and skills. For example, a recent survey (Lam, 2006) indicated the parents' dissatisfaction towards the education reform in Hong Kong that 58% more children has been sent overseas to further study in the HE sector from 2002 to 2004. Parents are therefore influential key stakeholders by selecting the type of education for the students. Parents' preferences could be used as a means to triangulate my result obtained from the key stakeholders and to confirm the accuracy of the findings in this dissertation.

4. Basing on the result I gathered from my present study I hypothesize that in Hong Kong only those AD curricula that can provide both vocational skills and general skills training to students can be sustained in the HE sector. Conversely, those programs which can provide only

vocational skills will be slowly phasing out. Examples of these failed programs can be easily found in the history of vocational education in the early part of Hong Kong. This might be a good starting point to begin another research study by testing this hypothesis.

5. General skills are usually considered to be able to improve a student's resourcefulness which is the second R of learning (see Glossary). Resourcefulness is defined by Claxton (1999) to mean the range of learning tools and strategies that people develop and employ or the ability to ingeniously search for new ways to beat the problem. If needed, a properly designed AD curriculum containing vocational and general skills can be made to tilt the balance of the two types of skills and therefore enhance the resourcefulness of the students. Students will be taught to accept responsibility for their own continuing learning, and the curriculum will further affect students' motivation in the development of a lifelong learning attitude. The correlation of the balance of skills and lifelong learning is a good topic for future educational research studies.

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APPENDIX A

March 25, 2005

Dear Sir/Madam

I am currently studying for my Doctor of Education degree and have reached the stage when I need to begin work on my dissertation. The focus of my research is on the curriculum design for Associate Degree Graduates for construction related programs.

The working title for my research is: An Investigation of Some of the Key Stakeholders' Preferences regarding The Curriculum of The Associate Degree in Hong Kong. I am concerned with the type of curriculum Associate Degree Students should study to meet the needs of employers. Therefore I am now gathering information from the Employers, especially on how to improve the curriculum content of Associate Degrees in Hong Kong.

The key questions of my research include, among others,

> *What vocational and general educational / transferable skills do some of the key stakeholders think are relevant for graduates and for employers and that should be taught in the Associate Degree curriculum and what should be the relative balance between these two types of skill?*

The information collected will be handled in strict confidence for **academic purposes only** and it will be published only in the form of statistical analysis without reference to any individual.

I would be most grateful if you could spare about 5-10 minutes to complete the attached questions. I would appreciate it if you could return the completed questionnaire using the stamped and self-addressed envelope. Should you have any queries, please do not hesitate to contact me on 2788 7635. Thank you very much for your kind help.

Yours faithfully,

Mr. Eric Cheng
Division of Building Science and Technology
City University of Hong Kong

APPENDIX A

Questionnaire for Employers Who
Have Employed or Will Employ Associate Degree Graduates

This questionnaire aims to solicit your views concerning the balance between vocational education and general education / transferable skills. Your views would be most valuable and of great help to me.

PART A About the Respondent

Respondent's Job Title: _____

Cumulative Number of Associate Degree Graduates Employed At Present or In The Past : □ 0 □ 1 to 4 □ 5 to 10 □ over 10

Respondent's Organization:

Company Profile
□ Government Department □ Contracting
□ Architectural Practice □ Engineering Services
□ Client/ Developer □ Project Management
□ Statutory Body □ Surveying
□ Others, please specify: _____

1. Which business do you operate in? (Please mark all that apply)

	Currently	Planning to move into		Currently	Planning to move into
Architectural Design	□	□	Products Marketing	□	□
Project Management	□	□	Building Services Engineering	□	□
Interior Design	□	□	Structural Engineering	□	□
Building Surveying	□	□	Facilities Management	□	□
Estate Surveying	□	□	Property Management	□	□
Quantity Surveying	□	□	Others _____	□	□

PART B **Employer's View About Associate Degree Skills**

2. During your business operation, how often are the staff's vocational skills used?

	Very Often	Often	A Little	Very Little	Not At All
a.Command of Auto CAD	□	□	□	□	□
b.Reading drawings	□	□	□	□	□
c.Reading manuals	□	□	□	□	□
d.Using codes of practice	□	□	□	□	□
e.Selecting building materials	□	□	□	□	□
f.Designing sizes of cables or pipes	□	□	□	□	□
g.Designing details	□	□	□	□	□
h.Writing valuation reports	□	□	□	□	□
i.Writing specification clauses	□	□	□	□	□
j.Taking off	□	□	□	□	□
k.Others_____	□	□	□	□	□

3. During your business operation, how often are the staff's general skills used?

	Very Often	Often	A Little	Very Little	Not At All
a.Mandarin (Putonghua) proficiency	□	□	□	□	□
b.Good English	□	□	□	□	□
c.Using fundamental information technology	□	□	□	□	□
d.Common sense	□	□	□	□	□
e.Problem solving abilities	□	□	□	□	□
f.Good work attitude	□	□	□	□	□
g.Interpersonal and social skills	□	□	□	□	□
h.Management skills	□	□	□	□	□
i.Others _____	□	□	□	□	□

4. Which is the more important Associate Degree skills?

□ Vocational Skills □ General Skills □ Equally important

PART C Employer's Prediction About FUTURE Associate Degree Skills

5. In a few years' time **(say till 2009)**, do you anticipate any changes in the construction related industry and therefore demanding different skills from your staff?

□ Yes (Go to Question 6) □ No (Go to **PART D**)

6. The skills changes are due to one or more of the following forces (you can select more than one answers):

□ economical (e.g. budget cuts, consultancy fee cuts)

□ technological (e.g. new computers, new materials)

□ political (e.g. more power struggles in the Legislative Council)

□ cultural (e.g. increased mainland influence)

□ social (e.g. migration in and out of HK)

□ others _____

7. In a few years' time from now **(say till 2009)**, how often do you think the staff's vocational skills would be used?

	Very Often	Often	A Little	Very Little	Not At All
a.Command of Auto CAD	□	□	□	□	□
b.Reading drawings	□	□	□	□	□
c.Reading manuals	□	□	□	□	□
d.Using codes of practice	□	□	□	□	□
e.Selecting building materials	□	□	□	□	□

f.Designing sizes of cables or pipes	☐	☐	☐	☐	☐
g.Designing details	☐	☐	☐	☐	☐
h.Writing valuation reports	☐	☐	☐	☐	☐
i.Writing specification clauses	☐	☐	☐	☐	☐
j.Taking off	☐	☐	☐	☐	☐
k.Others_____	☐	☐	☐	☐	☐

8. In a few years' time from now **(say till 2009)**, how often do you think the staff's general skills would be used?

	Very Often	Often	A Little	Very Little	Not At All
a.Mandarin (Putonghua) proficiency	☐	☐	☐	☐	☐
b.Good English	☐	☐	☐	☐	☐
c.Using fundamental information technology	☐	☐	☐	☐	☐
d.Common sense	☐	☐	☐	☐	☐
e.Problem solving abilities	☐	☐	☐	☐	☐
f.Good work attitude	☐	☐	☐	☐	☐
g.Interpersonal and social skills	☐	☐	☐	☐	☐
h.Management skills	☐	☐	☐	☐	☐
i.Others _____	☐	☐	☐	☐	☐

PART D About the Forces Changing the Associate Degree Skills

Please give your suggested reasons, if any, for the difference in the Associate Degree skills that you have answered in PART B (current) and PART C (future) above:

Reasons for vocational skills changes : _____

_____

_____

Reason for general skills changes : _____

_____

_____

In case more information about the changing forces to the industry are noted, can you then grant me an interview for a further probe? Yes / No **(If Yes, please fill in below)**

Name:

_____

Contact Address:

_____

Phone No.:

_____

Fax No.:

_____

Please return the completed questionnaire to Mr. Eric Cheng by the stamped and self-addressed envelope or by fax no. 2788 9716 on/before 13 April, 2005 (Wednesday)

Thank you very much for your contributions to vocational education in Hong Kong!

(All of the following original manuscripts were in **Cantonese**) APPENDIX B

December 4, 2003

PROGRAM LEADERS' PREFERENCES

Interview Manuscript 10 am – 10:25 am
E= Eric Cheng; N=Nxxxxx TXX (Program Leader of ASc BSE)

BSE Question 1
E: Looking back, when you were a student, what skills you have learnt are important?

N: No. We never had these in the curriculum. In my days, we learned GE through activities, like reading books, newspapers, etc. all could bring GE skills. During my student life days, my first year summer was spent in a summer workshop, my second year summer was spent in company training. All of these are compulsory.

BSE Question 2
E: I am trying to find out what percentage of General Education (GE) suits Associate Degrees.

N: Our program is 18% as shown here. But it's a question of how to define General Education. I would define it very broadly, astronomy, geography, social, political, history and culture are all GE. Any non-core courses in the program are GE.

BSE Question 3
E: But how much GE is sufficient?

N: Employers will always find GE not enough, but program managers like us will find the percentage (18%) being too much. Most employers focused on the technical capabilities. When they find the graduates' technical skills sufficient, they will want them to have GE capabilities, and when they find GE sufficient, they will want them to have more technical, this will never end nor be enough.

BSE Question 4

E: The labour department's Ad want the candidates to possess these skills, do you provide them in your curriculum? In summary, the requirements are about computer literacy, interpersonal, intrapersonal skills.

N: (after looking at the Ad Slip) these are basically language skills. We have this in our curriculum. For team work skills, it is impracticable to build in such skills in our curriculum. We will not design one course to train teamwork. We have such training in the projects. In a University setting it is impossible to train company skills. Team work cannot be trained in the curriculum, students cannot learn by reading text books. Students can only learn this in design projects but it is only a short term experience. It needs at least three months to learn. In a company environment, it is possible to learn language skills, teamwork skills and presentation skills. It may not be possible to learn all these in the University setting. The requirements listed in this Ad Slip are not curriculum requirements, they should be job skills.

BSE Question 5

E: But how should these skills be incorporated in the curriculum?

N: through the partnership with the professional institutions. The institution will require training to be done. It will only be possible if they act as a bridge with the university and companies.

BSE Question 6

E: would you prefer to have GE or not in your curriculum?

N: if possible, I would prefer to have none. For example, the present course in Chinese Civilization and Culture is of no use to our students.

BSE Question 7

E: the graduates can switch fields (air conditioning, electrical, fire and plumbing) in Building Services Engineering, could it be due to the having of GE contents?

N: No, the graduates can enter different fields because of the market needs.

BSE Question 8

E: What do you suggest to add in the future curriculum?

N: Industrial attachment with outside companies. A training program to provide students with teamwork training will be useful.

May 5, 2004

Interview Manuscript 10 am – 10:55 am
E= Eric Cheng; L=Lxxxxxxx PXXX (Program Leader of ASc S)

Surveying Question 1
E: As a student many years ago at your previous institution, can you recall the kind of skills and knowledge you have learned?

L: I learned General Practice Surveying. The courses I have learned were all relevant to the profession. They include building technology, valuation, measurement, town planning, economics. In the final year, I have learned development law, maintenance technology and valuation. The subjects were very focused on professional knowledge, of course there was also non-core subject like accounting as well. The curriculum we took followed exactly with the professional institution's requirement. I have also picked up skills in English language and computer skills using the computer programming language "BASIC".

Surveying Question 2
E: Looking back do you consider those skills and knowledge useful to your career that you later pursued?

L: All I have learned were UK-based. So in terms of direct application for practice they are not useful. But all graduates were expected to start learning from nothing. In terms of a disciplined learning they have been very helpful. Every graduate who worked locally could pick up the practice skills within three months. I remember my employer who gave me a task to complete. I checked and found out lots of information about the lease document, the outline zoning plan, relevant ordinances and then I finished the task based on these.

Surveying Question 3
E: For those skills and knowledge that you consider useful, have you incorporated them into the curriculum that you have designed for your Associate Degree students?

L: The skills and knowledge that I have learned were all UK-based. They include administrative law, two tier system, district plan, M4 motorway, compulsory purchase. They have not been directly applicable. But during actual work after graduation, they have been 100% absorbed into the local

situation. It is these local situations that are now incorporated into the current curriculum for the Associate Degree program.

Surveying Question 4
E: What skills do you think are important to employers?

L: The skills are two-sided. The vocational skills required for surveying are important. For example, for a general practice surveyor, the ability to do valuation reports. For a quantity surveyor, the ability to do measurement. For a building surveyor, the ability to do maintenance technology. These are the first side of the skills. Besides these, the employers also consider language, computer knowledge important. Therefore in our curriculum, we stress the importance of self-finding. In assignments, students are encouraged to look for information by themselves. During out-of-classroom activities organized by the Division, like the student retreat, student induction, and through student mentoring system, through student development seminars, we encourage students to pay attention to interpersonal skills, manners and work attitudes. It is not possible to build into the curriculum as a course in interpersonal skills, rather we can only instill the ideas into the daily projects and assignments.

Surveying Question 5
E: Will these skills be treated less seriously if no assessment is required for them in the curriculum?

L: No. When the society has a need, the students will learn the skills to meet these needs. For example, a course about information technology has been deleted due to curriculum change years ago. The students' computer skill in the use of Excel, AutoCad and Powerpoint has not dropped, but on the contrary has been highly praised judging from the feedback of our external examiners and external judges. So whenever the need is there, given that sufficient resources are made available, students can always achieve the kind of skills society wants.

Surveying Question 6
E: Do you teach student collaboration skills in your curriculum?

L: Our curriculum has room to encourage student collaboration skills. When I graduated, we collaborated through phone calls to find out things we have not learned in my Polytechnic. We can consult our colleagues, senior colleagues or our bosses. We checked records and then we raised our questions. That was how we learned. So in the current curriculum, we stress that society needs all

these, you students will need to learn all these. We need to instill the right work attitude to them.

Surveying Question 7
E: What would employers prefer you teach the students, vocational or general skills?

L: This is not black and white. Of course given that the vocational skills aren't too bad, some employers would prefer some graduates with a 60% vocational but with an 80% work attitude. Because with a good attitude, the graduate will have a desire to learn, soon he or she will improve the 60% vocational skills to top it up.

Surveying Question 8
E: Now if you are to revise the curriculum, what do you consider are the most needed skills and knowledge in order to improve in the present associate degree program?

L: It depends on the future trend of the graduates. If the majority of graduates go to further study in the bachelors degree program, then the curriculum content might have to be reduced to avoid overlapping. On the other hand, if they all go to work, then strongly vocational content will still be taught.

June 14, 2004

Interview Manuscript 3:15 – 3:42 pm
E= Eric Cheng; R=Rxxxxxx LX (Program Leader of ASc CEM)

CEM Question 1
E: Would you classify your Associate Degree Program in Construction Engineering and Management as a curriculum of vocational or general educational content?

R: It depends on how you classify general educational. If it is only about the provision of English Language courses, then the Program is still vocational in nature. The CEM Program uses vocational skills as the base, it is geared towards providing for the middle level workers. The Program aims to provide technical competency, but it also guides students to do presentation skills, because it is important. Students in their second year have already got hold of very good presentation abilities. This is reviewed from the Judges' feedback.

CEM Question 2
E: If these general skills are so important, why are they not written in the curriculum?

R: No, they are not written. Not putting down in curriculum does not mean they are not important, in fact, in very many occasions the importance for general skills have been stressed in program committees, in tutorials, etc. For example, in my course I am responsible to teach, every student has to prepare for all presentations, and then they have to be selected by ballots. In this way, students are trained to improve their presentation skills. This also forces them to be very attentive and interactive, rather than just sitting and watching.

CEM Question 3
E: Apart from languages and presentation skills, do you have other general skills you need your students to pick up?

R: We have computer animation. Nowadays, presentation using "power point" no longer suffices. Still photos in presentation are not good enough. We need our students to lead the trend. In the curriculum, there are loose courses like industrial training, and integrative projects, students are required to learn these new skills and apply them whenever they have opportunities. The final year project (BuiltExpo) Panel Judges have praised the very high standard of the

computer animation presentation. Besides presentation, students are required to learn Auto Cad for preparing drawings.

CEM Question 4

E: I don't understand why these skills are so vital but you still refuse to have them incorporated into your curriculum, could it be just because of resource constraints? Can you afford them in the curriculum?

R: We have only got 78[15] credits within two academic years. We can only afford to add these skills in the existing courses. So far we can still balance out the credit total with the required skills.

CEM Question 5

E: What do you reckon to be the general skills required by the employers in the construction industry?

R: We still consider they always want us to provide them with graduates skilful at proficient English languages, good presentation skills, good computer animation skills, and good computer programming for construction. In the past, computer courses were serviced by other Departments, now they are handled by our own lecturers. Our staff can focus on the need of the employer and teach the most up-to-date skills for the use of the construction industry. In this way, our Program has recently been ranked excellence in the Associate Membership level by the Hong Kong Institute of Surveyors, the first one in the UGC funded programs in Hong Kong. Also the Chartered Institute of Building of the UK will recognize the standard to be equivalent to the Incorporated Membership level.

CEM Question 6

E: Has your program been affected by trend in curriculum? In the ups and downs of the economy, curriculum may become vocational or general education, do you have this phenomenon in your curriculum?

R: No. The curriculum is always market-driven. We follow very closely with the market trend. In the past the Higher Diploma program was vocational, and so is the Associate Degree program. We stressed very much the need for language skills and the communication ability. Language proficiency is very important and we focused on grammar in the course of the presentation. We take the line that Associate Degree qualification should be more than a stop to

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15 78 Credits have since been reduced.

work in the industry. We want our graduates to go ahead to further study and we want them to jump to a higher degree. We expect more from the Associate Degree program than from the previous Higher Diploma program. We give the students whole person development in the course of teaching. This has to be given relying on lectures. It is a program direction and guidance, we want students to be self-dependent. But these are not written in the curriculum.

CEM Question 7

E: What vocational skills do you teach in the CEM program?

R: The curriculum is strong in Advanced Technology specializing in the teaching of high rise commercial buildings. The engineering content includes the design of temporary works foundations and their basic design and integrated with heavy work such as the foundation design. In management, we teach construction site arrangement. Together with law, economics and measurement, the program is highly demanding and requires students to be fully involved and trained.

CEM Question 8

E: Now if you were to revise the curriculum, what part of the present associate degree program you consider needing improvements?

R: In the future, some courses like, engineering mathematics which are general in nature will need to be prefixed construction to change from a service course to a host course. We have colleagues who have been trained in this area, can understand the related area better, and are able to quote more relevant examples in this area, to take up the delivery of these related courses. So we are more and more practice-oriented. Besides, the recognition by professional institutions will require better results to be achieved by the graduates in the future. So we will concentrate in meeting these special requirements.

June 30, 2004

Interview Manuscript 6:00 – 6:14 pm
E= Eric Cheng; R=Dxxxx YXXX (Program Leader of ASc AS)

(Dxxxx requested not to be audio-recorded, not until he has a clearer mind and therefore the interview was recorded in writing)

Architectural Question 1
E: Would you classify your Associate Degree Program in Architectural Studies as a curriculum of vocational or general educational content?

D: It has always been vocational. Because of professional institute's requirement, the graduates must be trained with the knowledge sufficient to carry out professional practice.

Architectural Question 2
E: What are the goods things in the curriculum?

E: There are knowledge, transferable skills and attitude. We want the students to gain all these. However, knowledge can be written down, and there could be a learning outcome. Transferable skills like problem solving, searching information and not able to be written down and cannot be measured. Attitude is even unwritten, not to mention measuring the results. The good thing is the whole program is adopted a problem based learning approach in student learning and teaching. The whole program consists of studio projects, problem cases, technical lectures, seminars, skill workshops and practical training, together with extra and co-curricular activities that are fully integrated into the whole curriculum.

Architectural Question 3
E: How do you know if the result is successful or not?

D: We won't know this yet. This has to be done in the long run. For knowledge we know we are successful. For example, students who have not been taught about building structure finally know it, so from this perspective this is a success. For simple transferable skills like communication, computer skills, problem solving skills, it is obvious that students have been successful. But for those interpersonal skills, team building, etc. the result is not so

successful yet. We need to wait for a few years before we know the efficacy of this prescribed method of problem-based learning.

Architectural Question 4

E: How do you compare the skills that you are teaching with the skills that you have learnt when you were a student?

D: We expect the present students to become some proactive students, students who can self-direct themselves in their work. The problem based learning will not benefit those students who do not want to take initiatives. Those who are lazy will not be transformed. It is only if the students who are active and want to learn then they will be transformed.

Architectural Question 5

E: Results are due to be measured, but if they review a failure, what would you consider the chief cause of failure?

D: If the students are not suitable, they will find this approach of Problem Based Learning not suitable.

(All of the following original manuscripts were in **Cantonese**) APPENDIX C

PROFESSIONAL BODIES' PREFERENCES

December 30, 2005

Interview Manuscripts during 11:48 am – 12:00 noon and 5:30 pm – 5:40 pm
E= Eric Cheng; A=Axxxxx CXXX (Education and Registration Board, Hong Kong Institution of Engineers (HKIE))

Instead of calling them general skills, HKIE has been using soft skills.

HKIE Question 1
E: How do you classify the construction industry and the profession? - old, established or risky technology?

A: Unlike other types of engineering in construction, Building Services Engineering is different because it widely covers a large area of knowledge. There are many instances where new innovations are required, for example, in intelligent buildings, highly advanced technologies are needed. It therefore demands a new way of thinking, henceforth general skills are preferred.

HKIE Question 2
E: Is it a common practice for the HKIE to vet the Associate Degree curriculum before recognizing it?

A: Not for Associate Degrees. HKIE recognizes these programs but has been deliberate to leave it flexible for the AD programs to develop their own content.

HKIE Question 3
E: Would the HKIE prefer to see the Associate Degree curriculum to run vocational or general education?

A: The HKIE would not prefer on these modes of education, so far the institution imposes no strict conditions on these. Apart from the 60% engineering requirement, 5-15% for mathematics and computing (not added up to 100%), there are no restrictions on the curriculum, especially on soft skills.

HKIE Question 4

E: From my previous survey, employers consider that vocational skills and general skills are equally important, does the HKIE agree with this result?

A: HKIE has regular contacts with employers, for example, during program accreditation activity to visit universities in Hong Kong, the HKIE team has met many employers and has had chances to discuss curriculum planning. They expressed to the team that programs be balanced to meet the need of the industry. The HKIE would have thought that there is a tendency to require more soft skills than the basic engineering skills.

HKIE Question 5

E: From my previous survey, employers were asked to predict what skills are more important in four years' time. The result is surprising: employers are of the view that: vocational skills will gradually become less important in 4 years' time; but, general skills will gradually become more important in 4 years' time. Can you explain why there is such a view from the employers?

A: Employers see that soft skill is getting more and more weighted in the office in the future. This view is really a mainstream thinking. The HKIE suggests to achieve incorporation by integrating these soft skills into the basic courses. Engineering is very wide profession and there is a lot to teach, so there is no room to allow a single course to teach soft skills individually. Take presentation skill as an example, such a skill can be developed in many courses of engineering and can be planned in the curriculum and students encouraged to make use of. Summer placements are also planned in some Bachelor Degree programs to allow students' exposure of these soft skills. Again there are no special requirements for AD programs.

December 30, 2005

Interview manuscript during 5:50 pm – 6:00 pm
E= Eric Cheng; B=Bxxxxxx LXX (President, Hong Kong Institute of Architects (HKIA))

HKIA Question 1
E: How do you classify the construction industry and the profession? - old, established or risky technology?

B: The construction industry is not very conservative, there are many examples of prefabrication and new ideas. Five years' ago, the much praised design style in school construction called the Triennium School has gone obsolete and has been replaced and changed. However, general skills are not seriously considered by the employers, they are more concerned about the lack of middle level professionals in the architectural world. They felt that there are too many chiefs with no Indians. The architectural Bachelor graduates all regarded themselves as professionals, and therefore someone will be managed by them and will work for them and refused to do something that are remote from their profession. From this perspective, the architectural profession is very hierarchical and very conservative.

HKIA Question 2
E: Is it a common practice for the HKIA to vet the Associate Degree curriculum before recognizing it?

B: The present membership comprises those who have finished cogent Bachelor degrees or Masters degrees but not AD graduates. Over the last two years, the HKIA has been planning a new class called the affiliated membership. This class is not yet approved but once approved, would probably be taking in AD graduates. The HKIA sees those British qualification from the British Institute of Architectural Technologists as a way forward. These members have the statutory power to tender drawing submissions to the relevant authority.

HKIA Question 3
E: Would the HKIA prefer to see the Associate Degree curriculum to run vocational or general education?

B: General education must be a trend. The Education Reform for a 3- 3- 4 progression in Hong Kong is setting general education as a trend. The four year university will have rooms for general education. We don't know the balance between the two.

HKIA Question 4

E: From my previous survey, employers consider that vocational skills and general skills are equally important, does the HKIA agree with this result?

B: Generally agreed.

HKIA Question 5

E: What balance should be struck between general skills and vocational skills?

B: We cannot put in a fixed figure.

December 31, 2005

Interview manuscript during 10:48 – 11:00 am
E= Eric Cheng; W=Bxx Wxxx (Chairman, Board of Education, Hong Kong Institute of Surveyors (HKIS))

Instead of calling them general skills, HKIS has been using management skills.

HKIS Question 1
E: How do you classify the construction industry and the profession? - old, established or risky technology?

Bxx: -

HKIS Question 2
E: Is it a common practice for the HKIS to vet the Associate Degree curriculum before recognizing it?

Bxx: There are still no curriculum planned for Associate Degree programs yet. The HKIS will work hard on this and depending work next year. The target for the Technical Membership is to recruit membership at the middle level, to support the profession of surveying.

HKIS Question 3
E: Would the HKIS prefer to see the Associate Degree curriculum to run vocational or general education?

Bxx: The basic objective is the Associate Degree is for training technicians for the construction industry. As far as technicians' skills go, the first priority must be required for vocational skills and then management skills.

HKIS Question 4
E: From my previous survey, employers consider that vocational skills and general skills are equally important, does the HKIS agree with this result?

Bxx: Depends on what level of employees. For professional grade, found them weak in measurement for quantity surveying, in valuation for general practice surveying, in surveying for building surveying. Always wanted to do management. Having said this, general skills are always important.

HKIS Question 5

E: From my previous survey, employers were asked to predict what skills are more important in four years' time. The result is surprising: employers are of the view that: vocational skills will gradually become less important in 4 years' time; but, general skills will gradually become more important in 4 years' time. Can you explain why there is such a view from the employers?

Bxx: Generally agreed. Bachelor degree back to basics. Technician grade can be given more general skills.

WRITTEN RESPONSE TO THE INTERVIEW SCHEDULE
Dated JANUARY 3, 2006

Responded by Mr TX Cxxxxx
Immediate Past President of the HKIS

The followings are my interview schedule:

HKIS (Written) Question 1
E: How do you classify the construction industry and the profession? - old, established or risky technology?

T: The construction industry in HK is considered as an established industry but is now relatively old with the risk of losing its weight in the overall economy of HK (in terms of GPD). The surveying profession is mature but about 60-70% is still considered old fashion as evidenced by the lack of advanced technology compared with other Asian Countries in, say electronic tendering, electronic measurement, the wide use of web-based application technology.

HKIS (Written) Question 2
E: Is it a common practice for the HKIS to vet the Associate Degree curriculum before recognizing it?

T: Usually HKIS will only vet the documents submitted by an applicant for course validation. They will not take the initiative to comment on the AD curriculum unless you apply for their recognition.

HKIS (Written) Question 3
E: Would the HKIS prefer to see the Associate Degree curriculum to run vocational or general education?

T: I cannot speak on behalf of HKIS or the Board of Education. But as far as I am concerned and my general feeling is to have the AD run vocational. It may just fill the gap between the university graduates and the industry expectation.

HKIS (Written) Question 4
E: From my previous survey, employers consider that vocational skills and general skills are equally important, does the HKIS agree with this result?

T: Depends on how you phrase your questions. I would agree both vocational skills and general skills are equally important in the very general context. But when we come to which university and which course should focus on what, there should be some difference in emphasis.

HKIS (Written) Question 5

E: From my previous survey, employers were asked to predict what skills are more important in four years' time. The result is surprising: employers are of the view that: vocational skills will gradually become less important in 4 years' time; but, general skills will gradually become more important in 4 years' time. Can you explain why there is such a view from the employers?

T: I would say that they may probably talking about generally "general skills" will be of more depend as it is the trend of other professions as well. But again, that does not pre-empt that vocational training is not necessary. If HK is not going to have any formal vocational training, then I am afraid that these vocational skills will be trained to Mainlanders who eventually compete with HK students. As employer, I would need the support from technicians but on the other hand I would not care where they come from so long as when I need them they are available.

HKIS (Written) Question 6

E: Can you spare some time for me to have an interview with you, with sound recorded?

T: All in all, I think there is a merit for the AD course to stay on as there are too many degrees holders in HK who are, with due respect, of lesser expected knowledge of an university graduate today.

Part D – Written Comments made by Employers

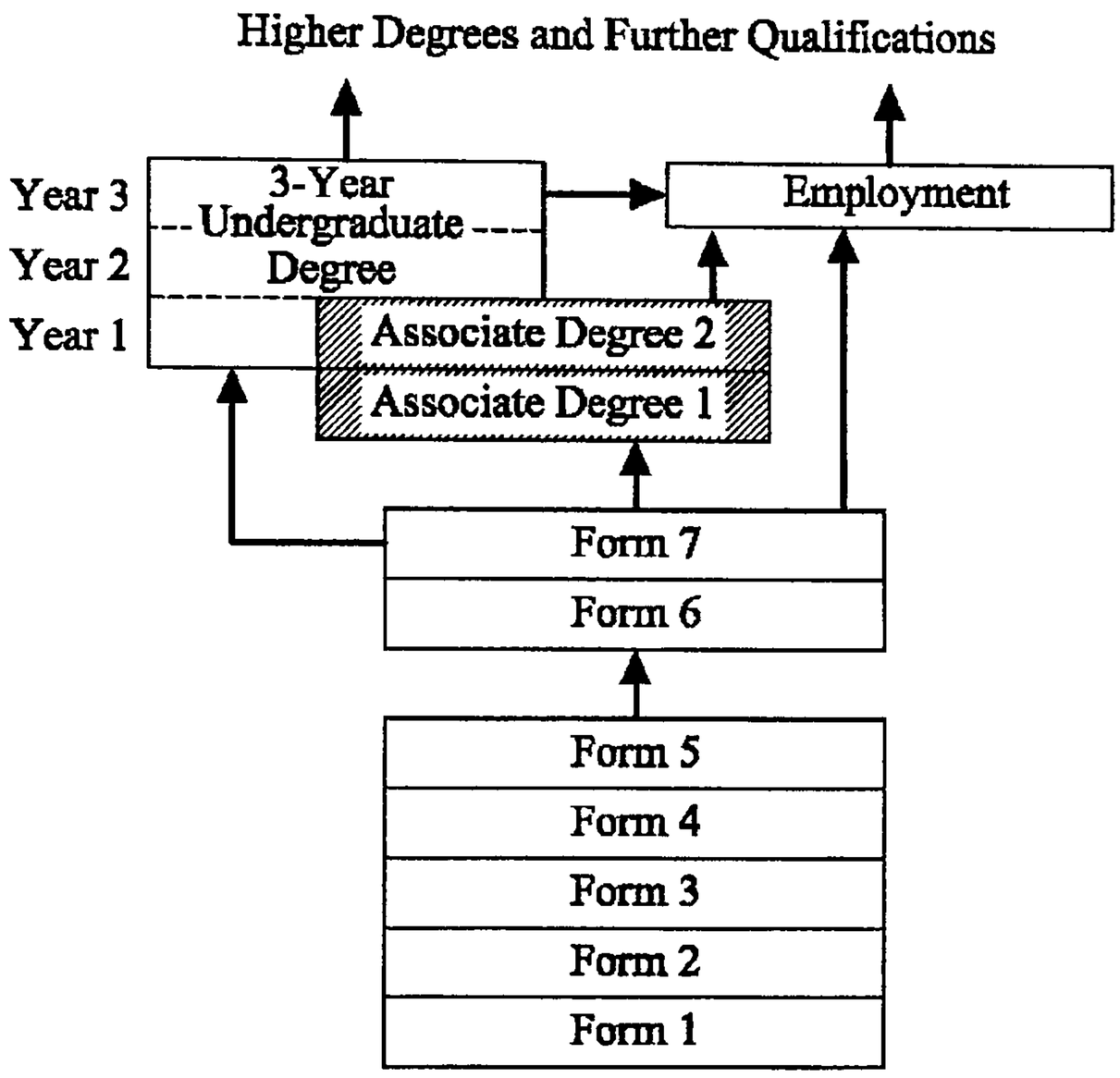
Suggested reasons for Vocational Skills changes from the employers' survey:

Voc Changes: customers are more educated
Voc Changes: taking off will not be decreased!
Voc Changes: Increased legislation requirement
Voc Changes: More rely on I.T.
Voc Changes: China market and international competitions
Voc Changes: technology advancement, competition among professionals, more learned clients
Voc Changes: Due to economical result, employee needs to know more about the technology to do the in a cost effective way.
Voc Changes: Advances in electronics and I.T. Technologies will accelerates the automation of a vast of amount of routine work we execute today.
Voc Changes: Changing Environment requires any professionals to be equipped with multi-skill / skill knowledge.
Voc Changes: The change of market situations
Voc Changes: Due to expansion of Mainland China market and globalization.
Voc Changes: The design inputs will not only come from Consultants but also from Contractors or relevant parties.
Voc Changes: Due to increase in demand and of quality and keen competition in the industry.
Voc Changes: An associate should be a generalist not a specialist
Voc Changes: There is a decline in the standard in general. The tender / contract preparation works whereby designing details and specification are blindly copied.
Voc Changes: Development towards multi-disciplinary practices ie working across other areas of works. For example QS may involve more BS works etc.
Voc Changes: new technology
Voc Changes: More demanding by the market
Voc Changes: More use of computer is a must in future. Other items are much the same.
Voc Changes: QS may be involved in selection of materials, thus writing specification is necessary.

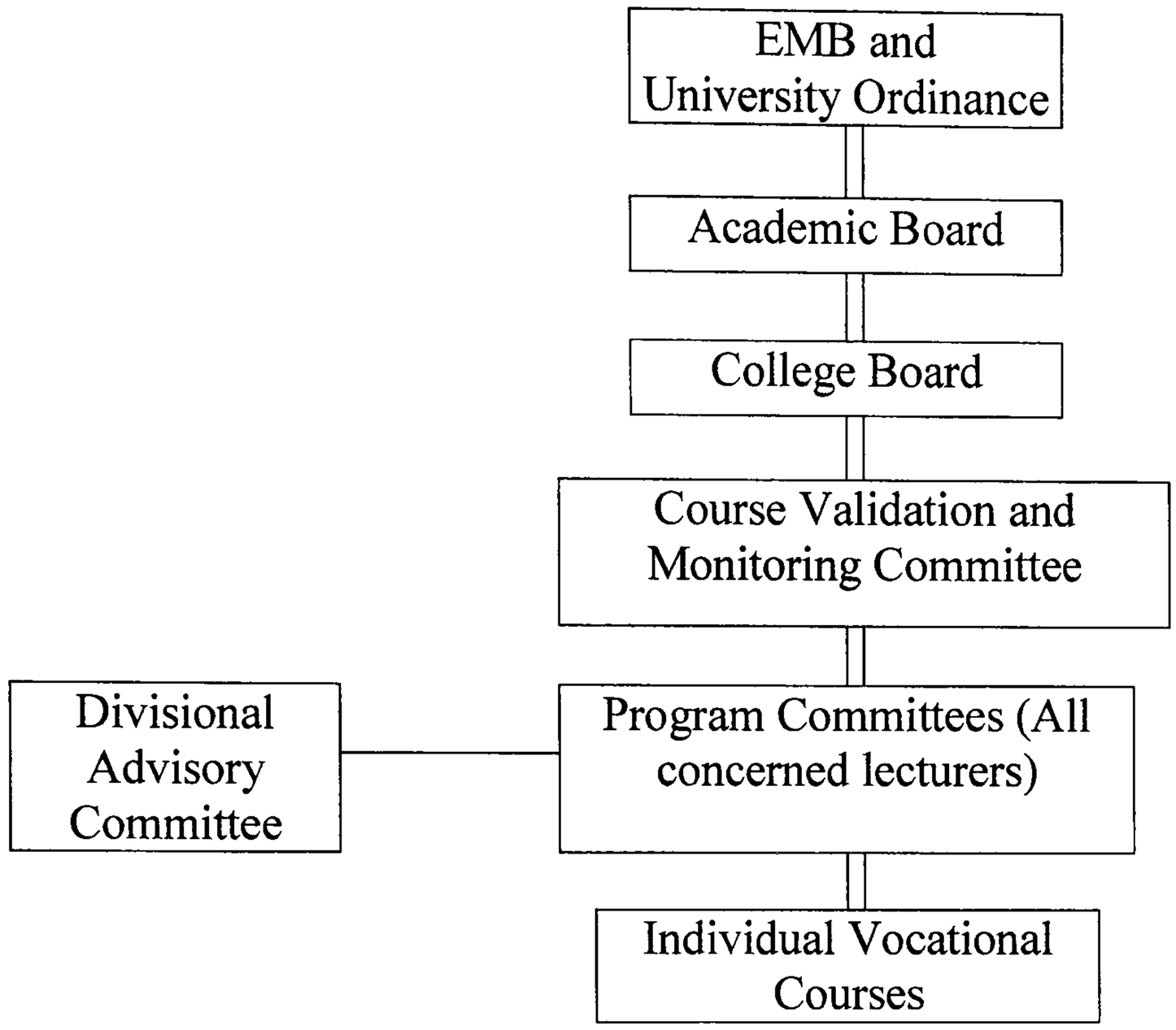
Suggested reasons for General Skill change from the employers' survey:

Gen Changes: more demanding from customer
Gen Changes: influence from mainland China
Gen Changes: more involvement with projects in the Mainland, more I. T. development
Gen Changes: The business trend in recent decade, the staff can speak good Mandarin or other languages should be useful in their career and for their further development.
Gen Changes: Competition in market is higher, China market and its social influences.
Gen Changes: Increased legislation requirement
Gen Changes: Influence from Mainland
Gen Changes: English and Mandarin would be essential for communication with all in authority. (especially in Asia), 80% web site in English.

Gen Changes: more influence from Mainland; more demanding clients
Gen Changes: Land surveying is a service. Social skills help to keep the client; management skills help to save money
Gen Changes: Changes in political, social and market situation especially influences from cross the border will gradually impact the way we operate business in H K. Most of the influences will be on the positive side. E.g. opportunities to work in China.
Gen Changes: Managerial perspective requires to handle his work and fulfill own duties.
Gen Changes: Operations are expected to be even more automated.
Gen Changes: More training should be put in English business writing and presentation skills.
Gen Changes: Due to expansion of Mainland China market and globalization.
Gen Changes: To cope with the changes in the industry, the general skills have to be improved in order to be more competitive.
Gen Changes: To prepare themselves to adopt to another areas of work or working in a different environment.
Gen Changes: more demanding customers
Gen Changes: More works in PRC and South East Asia
Gen Changes: More of Mandarin is a must.
Gen Changes: More interaction with Mainland China, chance promoted to senior grade.



Existing Education System in Hong Kong
(The Roles played by Associate Degrees Between Undergraduate Degree and Employment)



Course Curriculum Approval Procedure in the Institution

(Ways of Vetoes Exercised by External Stakeholders, including the EMB)

(Sources: Calendar 2004-2005, City University of Hong Kong)